The Rights of Infants

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EARLY PSYCHOLOGICAL NEEDS AND THEIR SATISFACTION

By

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TO MELVIN MAYNARD JOHNSON

INTRODUCTION

THE more we study human nature with its capacity for personal and social relationships the clearer we come to understand that a wealth of natural energy is in our possession which goes to waste or makes trouble because it is unchanneled and undirected. Sometimes it appears to stagnate or deteriorate because it is undeveloped.

Babies have the right to develop to the full the natural resources of life energy within them called instinct. This is the motive power not only for physical activity but also for mental function. Like all the other primary forces of nature this energy must have guidance and direction from the beginning. It has to be channeled into body functions and brain functions. Like electricity, water power, or any of the mechanical forces of nature, it cannot be left free and uncontrolled, lest it become destructive and distorted. The natural impulses of an infant cannot be summarily dammed up or snuffed out when their expression becomes inconvenient for adults. Parents have, rather, the task of directing consistently the primary behavior of the baby as it evolves from one stage to the next so that his primary motor powers may be constantly utilized for the more complete functioning of body and mind.

To guide is difficult, and parents therefore have the right to know the facts discovered by biologists and physicians which tend to clarify the laws of human personality development. Also, parents have a unique opportunity to add to this branch of knowledge if they are keen in observing human nature and know something of its biological roots. They have to face the fact that failure to balance and direct the natural functions of the baby from his birth predisposes the child to personality difficulty later on and even to mental breakdown. Parents have to remind them-

selves constantly that human personality is a continuous development, and healthy emotions as well as a free creative intelligence are rooted in early infant experiences.

The ideas presented in this book are based on a long series of studies, from many different angles, of babies and their parents. The purpose of this study was to determine some facts about the psychological needs of small infants, and to discover how the satisfaction of these needs might contribute to the enrichment and stability of emotional life and to our human capacities to live, learn, and adjust more happily. Next, we hoped to find out more of the nature of the first personal relationship between the baby and his parents and the effect of this highly personal first adjustment on the future personality of the child. Doctors who concern themselves with mental health constantly find evidences that the roots of unhappiness, of ineffectual living, of dependency and unsocial behavior, as well as of the more extensive personality disorganization which we know as mental illness, lie in maladjustments which begin to be established in earliest infancy.

Another line of investigation was to determine to what extent tendencies toward poor nervous organization existed in some babies at birth, and whether such tendencies might develop or increase in response to the wrong parental care.

Finally, we hoped to learn to what extent strong emotional attitudes in the parents or in a child's nurse may affect the rapid and sensitive personality development taking place in the first year of life.

For the first part of this study, the writer wishes to acknowledge the opportunity offered by a Commonwealth Fellowship of three years for intensive study of psychiatric problems in both children and adults. This Fellowship was granted by my friend and teacher, Dr. C. Macfie Campbell, of the Boston Psychopathic Hospital. During the first year of this Fellowship, studies were made at the Boston Children's Hospital on a group of children suffering from birth injuries and congenital disorders of the nervous system; at the Boston Psychopathic Hospital contrasting

studies were made on children suffering from behavior disorders, without organic nervous disease.

Two years of study took place in Vienna, in the Wagner-Jauregg Clinic under the direction of Professor Poetzl, where mentally ill adult patients were studied intensively. An attempt was made here to observe cases in which the earliest upbringing of the individual as well as something of the personality of the parents were known, in order to determine, if possible, what part these factors played in the evolution of the mental illness. During this period, a study of psychoanalysis and its particular form of approach to all these problems was made with Anna Freud.

Following this, observations were made on the reactions of newborn babies in three different maternity hospitals in New York City. Some 600 healthy infants were observed and their response to various types of routine care followed. In addition, a number of infants born and taken care of at home were observed as a matter of contrast. A study was made of some 20 premature babies who had functional disturbances of breathing, circulation, or nutrition. In another group a number of borderline cases were observed in whom there was a question of mental defect on an organic basis. One microcephalic idiot was observed in order to contrast the kind of functional adaptations which are made when the forebrain is definitely absent. Lastly, personality studies were made of a group of 100 expectant mothers. Particular emphasis was placed on their reaction to pregnancy and the birth of the child. The infant's immediate reaction to birth was studied, and 20 of these children have been followed through four years of life in order to watch the development of the child-mother relationship.

This study of infants has now been in progress for eight years and was made possible in part through the funds granted by the Scottish Rite Masons, whose contributions to various studies in mental hygiene have been made for years without benefit of publicity. These funds were allotted to the writer through Dr. Nolan D. C. Lewis, who also contributed generous help in

the form of valuable suggestions on the line of study to be followed. Acknowledgment is also given to the many nurses and to fellow psychologists who contributed so generously of their time to this infant study.

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The Rights of Infants

I. THE RIGHT TO A MOTHER

WHEN SCIENCE and "instinct" seem to clash, most of us are on both sides of the argument at once. We can sympathize with the dog who tears the bandage from his paw, meekly indicating, "I know you meant well, but something tells me this is all wrong; the thing to do is to lick it." We can sympathize just as much with the veterinary who put it there. If we are curious enough to observe closely a great many examples, we usually find that both sides of this vital science and instinct argument are right, and that science had good reason for doing what it did, but failed to take into account some of the deep, hidden facts behind instinct. This is particularly true in the field of baby care, for here science is firmest, and Nature speaks with her most compelling voice.

The purpose of this book is to take up a vital aspect of infant care which is not covered in the manuals dealing with food and general hygiene—the feeling life of the baby, the human impulses which get their initial momentum in the primary relationship between the child and the mother. Modern science, when it considers the matter, assumes that this basic tie exists in order that the child may be fed and protected from harm during its helpless infancy. This theory, if it stops there, makes the function of the mother that of a trustworthy nurse, who can be arbitrarily replaced. It leaves out of consideration the matter of a personal relationship on which the child's future emotional and social reactions are based.

This attitude is psychologically all wrong—so much so that the infant who is treated impersonally, however well nourished and clean he may be, is actually thwarted in his mental development and may suffer more cruelly than an adult locked up in solitary confinement. The experiences of infancy determine in no small way the evolution of individual personality. Certain studies of young children will illustrate the point.

Not many years ago one of the most baffling problems of child health was a disease known as marasmus. The name comes from a Greek word which means "wasting away." Sometimes it is called also infantile atrophy or debility. It affects particularly children in the first year of life, and less than three decades ago it was responsible for more than half the deaths in that age group.

To combat this tragic evil a special study of infant care was undertaken by both medical and social agencies, and the astonishing discovery was made that babies in the best homes and hospitals, given the most careful physical attention, often drifted into this condition of slow dying, while infants in the poorest homes, with a good mother, often overcame the handicaps of poverty and unhygienic surroundings and became bouncing babies. It was found that the element lacking in the sterilized lives of the babies of the former class, and generously supplied to those that flourished in spite of hit-or-miss environmental conditions, was mother love. In consequence of this new insight, science, without attempting to analyze the life-giving quality of mother love, came to terms with sense. Hospital authorities began looking around for a "Pharaoh's daughter" to care for the unloved children who fell into their hands. A new system of carefully selecting foster mothers was developed, and whenever an infant had no suitable person to care for him, he was sent to a foster home rather than to an institution unless the illness was acute. Young infants are now kept in hospitals for as short a time as possible. As a result marasmus is becoming a rare disease.

It is shocking that our ignorance endangered through neglect of the human element, the lives of many infants we were trying to save, just at a time when science was making so much progress in other directions; yet the study of marasmus has added greatly to our understanding of infant nature. The disease showed in a dramatic way the meaning of hunger for mothering experiences and the effect on the child's mental as well as physical functions when this need is not satisfied. The typical life story of a baby who suffered from maramus will help to make this clear.

Little Bob was born in the maternity hospital where the writer

was making studies of infants at the time. He was a full-term child and weighed six pounds three ounces at birth. During the two weeks' stay in the hospital the baby was breast fed and there was no apparent difficulty with his body functions. The mother, a professional woman, had been reluctant about breast feeding because she wished to take up her work as soon as possible after the baby was born, but she yielded to the kindly encouragement of the hospital nurses, and the feeding was successful. Both mother and child were thriving when they left the hospital.

On returning home the mother found that her husband had suddenly deserted her—the climax of an unhappy and maladjusted marriage relationship. She discovered soon after that her milk did not agree with the baby. As is frequently the case, the deep emotional reaction had affected her milk secretion. The infant refused the breast and began to vomit. Later he was taken to the hospital and the mother did not call to see him. At the end of a month she wrote that she had been seriously ill and asked the hospital to keep the child until further notice.

In spite of careful medical attention and skillful feeding, this baby remained for two months at practically the same weight. He was in a crowded ward and received very little personal attention. The busy nurses had no time to take him up and work with him as a mother would, by changing his position and making him comfortable at frequent intervals. The habit of finger sucking developed, and gradually the child became what is known as a ruminator, his food coming up and going down with equal ease. At the age of two months he weighed five pounds. The baby at this time was transferred to a small children's hospital, with the idea that this institution might be able to give him more individual care. It became apparent that the mother had abandoned the child altogether.

When seen by the writer, this baby actually looked like a seven months' foetus yet he had also a strange appearance of oldness. His arms and legs were wrinkled and wasted, his head large in proportion to the rest of the body, his chest round and flaring widely at the base over an enormous liver. His breathing

was shallow, he was generally inactive, and his skin was cold and flabby. He took large quantities of milk but did not gain weight since most of it went through him with very little assimilation and with copious discharges of mucus from his intestines. The baby showed at this time the pallor which in our study we have found typical of infants who are not mothered, although careful examination of his blood did not indicate a serious degree of anemia. He was subject to severe sweating, particularly during sleep. A thorough study showed no indication of tuberculosis. The child's abdomen was large and protruding, but this proved to be due to lax intestinal muscles and consequent distention with gas and to a greatly enlarged and distended liver, which was actually in proportion to that of the foetus. There was no evidence of organic disease, but growth and development were definitely at a standstill, and it appeared that the child was gradually slipping backward to lower and lower levels of body economy and function.

The routine treatment of this hospital for babies who are not gaining weight is to give them concentrated nursing care. They are held in the nurses' laps for feeding and allowed at least half an hour to take the bottle. From time to time their position in the crib is changed and when possible the nurse carries them about the ward for a few minutes before or after each feeding. This is the closest possible approach to mothering in a busy infants' ward. Medical treatment consists of frequent injections of salt solution under the skin to support the weakened circulation in the surface of the body.

With this treatment the child began to improve slowly. As his physical condition became better, it was possible for our research group to introduce the services of a volunteer "mother" who came to the hospital twice daily in order to give him some of the attention he so greatly needed. What she actually did was to hold him in her lap for a short period before his 10 A.M. and 6 P.M. feedings. She was told that he needed love more than he needed medicine, and she was instructed to stroke the child's head gently and speak or sing softly to him and walk him about.

Her daily visits were gradually prolonged until she was spending an hour twice a day, giving the baby this artificial mothering. The result was good. The child remained in the hospital until he was five months of age, at which time he weighed nine pounds. All rumination and diarrhea had stopped, and he had become an alert baby with vigorous muscular activity. His motor coordinations were of course retarded. Although he held up his head well and looked about, focusing his eyes and smiling in response to his familiar nurses, he could not yet grasp his own bottle or turn himself over, as is customary at this age. The finger sucking continued, as is usually the case with babies who have suffered early privation.

In accordance with the new hospital procedure, as soon as the child's life was no longer in danger, he was transferred to a good, supervised foster home in order that he might have still more individual attention. Under this regime, his development proceeded well and gradually he mastered such functions as sitting, creeping, and standing. His speech was slow in developing, however, and he did not walk until after the second year. The general health of this child is now excellent at the end of his third year; also his "I.Q." is high on standard tests, but his emotional life is deeply damaged. With any change in his routine or with a prolonged absence of the foster mother, he goes into a state which is quite similar to a depression. He becomes inactive, eats very little, becomes constipated and extremely pale. When his foster mother goes away, he usually reacts with a loss of body tone and alertness, rather than with a definite protest. His emotional relationship to the foster mother is receptive, like that of a young infant, but he makes little response to her mothering activities except to function better when she is there. He has little capacity to express affection, displays no initiative in seeking it, yet fails to thrive without it. This lack of response makes it difficult for the foster mother to show him the affection which he so deeply needs. Without the constant friendly explanations of the situation from the visiting nurse, she would probably have given up the care of the child.

This story, typical of the reaction of unmothered babies, throws light on the psychological importance of mothering. We have been too long inclined to see this only as a nursing problem involving routine physical care and not as an innate need for love, which is a necessary stimulus for psychological development. Most of the books on the care of infants deal almost exclusively with such matters as nutrition, fresh air and sunshine, immunization, and daily routine. Distracted young mothers who have given their earnest attention to watching the clock instead of the child sometimes treat the baby as if his mental and physical insides were run on the same principle as the clock's. There is something significant and very modern about the story of the young mother who conscientiously changed her baby's feeding period ten minutes a day to adjust him to daylight saving and then found to her consternation that she had made the favorite error of putting him back instead of forward, so that he ended up two hours out!

This book is not written to disparage the value of physical care and the tremendous advances we have made along those lines, but rather to bring up to date our knowledge of the early mental life of the baby and the emotional aspects of motherhood, so that the child may immediately become a part of the great network of human relationships. Just a word of reassurance might be added here for the comfort of the young mother who feels that she has had all she can do to master the technics of foods, formulas, and immunization and who may be inclined to think that she had better give up trying to be a mother altogether if she has to be an expert in such abstruse matters as the development of her child's mental life and psychological needs. These are really very simple and primitive matters in practice, even if a bit complicated in their analysis. The woman who is herself emotionally healthy soon learns, both by instinct and by observation, to know her own baby. She will watch with keen interest his rapid psychological development, but she must also take the trouble to learn a few of the guideposts by which she can help her baby to progress smoothly from one stage to the

next. But whether mothering is done by instinct or design, it is important for everyone to know that it is as vital to the child's development as is food.

All good science begins by defining its terms, so that it is essential to make clear first of all just what we mean by mothering. It is really a continuance of the closeness of the prenatal state, and the more clearly it imitates certain of the conditions before birth the more successful it is in the first weeks. The newborn baby still needs to be carried about at regular intervals until he can move and coördinate his own body. This helps to strengthen his sense of equilibrium and to give him a feeling of security. Also he must have frequent periods of actual contact with the mother because the warmth and the holding give him reassurance. Contact takes the place of the physical connection before birth when the child was like an organ of the mother's body. In addition, mothering includes the whole gamut of small acts by means of which an emotionally healthy mother consistently shows her love for her child, thus instinctively stimulating his psychic development. Obviously, feeding, bathing, and all the details of physical care come in, but in addition to these duties, which can easily become routine and perfunctory, we mean all of the small evidences of tender feeling—fondling, caressing, rocking, and singing or speaking to the baby. These activities have a deep significance.

Mothering also means understanding an infant's biological needs. The child has not one but three hungers; he has a hunger for oxygen, and a craving to feel as well as to eat. At the same time he needs help in strengthening through frequent use the organs and muscles through which these hungers are satisfied. His more specific psychological needs are to feel secure, to get pleasure from his body functions, and to feel that he is a going concern in the world of human beings. An important impetus to mental development is the appropriate stimulus of the senses, and this leads to getting a sense of self and of the world of physical objects, as well as to beginning to feel a sense of personal relationships.

A baby does not come into the world complete, like an adult on a small scale. Not by any means. The early painters took a long time to discover that a child does not look like a miniature man or woman, and some of their paintings of madonna and child are amusing to us for that reason. But we ourselves are even more obtuse when we think of a child's mental and nervous organization as being like that of an adult but on a small scale. Much of the brain substance, and particularly the gray matter, where we know higher mental activity takes place, is quite incomplete at birth; the cells are unfinished and some of the blood vessels which feed and irrigate them are not yet developed. It is for this reason that the psychological task of the mother in helping the baby to adjust is so great. Very few mothers, and not too many scientists for that matter, seriously concern themselves with the fact of this great immaturity of the human nervous system and the consequent helplessness of the infant. The baby is a potential person, but his mother must actually function for him for many months, and any separation from her at this time causes damage psychologically. The general tendency is to put emphasis exclusively on the nutritional aspects of development rather than on the integration of all body functions. Even among the most intelligent people of both scientific and lay groups, the opinion is amazingly widespread that if an infant is properly fed and protected from cold and infection, he will develop as fully in body and mind as his native endowment or heredity warrants. The pediatrician thinks first in terms of calories, digestion, and regular gain in weight. Mothers and nurses are encouraged to focus their attention on formulas, cleanliness, and a host of other important but impersonal details, and our entire system of infant care has become a highly mechanical procedure.

The infant's mental functioning, the development of his emotional capacities and of his budding personality have been largely left in the hands of fate, with little or no contribution from doctors or parents. "Leave the child alone to grow and develop and do not spoil it," is supposed to be the advanced attitude of the nursery. The time-honored cradle and the comfortable rocking

chair, as well as lullabies, are considered old-fashioned and even reprehensible from the modern scientific point of view. Let us, then, take a look in the direction of the baby's first psychological needs and the role of the mother in helping him to coördinate his primal body functions, as well as in bringing his feeling and perceptive life into action.

If we observe closely large numbers of newborn babies to find out how ready they are to adapt to life, we are struck immediately by the fact that they are not functionally attuned. They breathe quite insecurely, and even after respiration has been well started it continues to be rapid, shallow, and often irregular during the first weeks of life and is easily disturbed by any adjustment the child has to make. Most people take it for granted that nursing is automatic, yet more than 50 percent of newborn babies cannot suck vigorously enough to get their own nourishment until they have been repeatedly prompted and assisted. Thus their most fundamental needs are satisfied in proportion to the help that is given them by the mother or nurse. Their repertory of behavior is limited to paroxysmal crying and random wriggling and kicking movements. Most of the time they are in a sleeplike state, and their small bodies, if examined carefully, are often found to be tense, rather than relaxed, and none too comfortable. This bears witness to the fact that the nervous system is incomplete and the brain not yet functioning in the control of behavior. Even instinctual activity is not clear-cut and precise as it is in most young animals.

It has always seemed paradoxical that the lower animals, which we know are not so well equipped nervously as human beings, can satisfy their primal hungers at birth or soon after without much assistance. The opossum, for example, very low in the scale of mammals, climbs into the pouch of the mother immediately after birth and may even compete with another member of the litter for a nipple, to which he fastens himself and remains clinging. The Rhesus monkey, much higher in the scale of animal development, often assists with his own birth by catching onto the hair of the mother and pulling himself out of the birth canal,

after which he climbs to the breast and clings, with arms around the mother's body or neck.* Human babies cannot reach for mother until they are four or five months of age.

This paradox, however, is really not so surprising. Just because these animals have a much simpler brain than the human baby, they are much more nearly mature at birth. Their body economy is not being taxed by the development of such a complicated organ as the human forebrain. Agility of locomotion is, at least for the monkey, his chief accomplishment. Human babies, on the other hand, who are highly endowed with respect to gray matter, cannot function for themselves until these higher brain mechanisms are nearing completion. For this, the infant must have two conditions which are impossible before birth; that is, a more constant and adequate supply of oxygen, and the experiences of mothering activity, which awaken the feeling life.

When the umbilical cord is cut at birth, the child, as we have said, is far from being a complete and independent individual. The infant is peculiarly helpless, and it is not until after the faculties of speech and locomotion have developed that he can cope with any separation from the mother without danger. Mother and child after birth are psychologically still a unit, and close relationship is as important for early mental development as was the more primitive connection with the foetus for physiological development. As we have seen in the study of marasmus, interference with this natural relationship means that the infant starves for mothering, and as a result the vital activities, first of alimentation, then of breathing and circulation, get out of order, and we find the small body functioning much as it did before birth.

The infant appears, then, to have at birth a peculiarly human faculty for registering and associating sensory impressions from personal contact with the mother. Concomitant stimuli of touch, pressure, warmth, and of being moved about, together with the feelings which are aroused by suckling, come to form a nucleus of

* See Tinklepaugh and Hartman, "Behavior and Maternal Care of the Newborn Monkey," in *Journal of Genetic Psychology* (June, 1922).

awareness to which sight, sound, taste, and smell are gradually added.

It is difficult to draw a clear line between the infant's physical and psychological needs, for the very act of making him more comfortable physically, if done by a kindly hand, may at the same time stimulate his sense of aliveness and his consciousness of personal contacts. Certainly we know now that the capacity for mature emotional relationships in adult life is a direct outgrowth of the parental care, more specifically the mothering, which an infant receives. It is the first relationship of life which activates the feelings of the baby and primes his dormant nervous system into full functional activity, giving to each individual personality its original slant. Social impulses are part of our primary equipment; emotional hunger is an urge as definite and compelling as the need for food. When we deny an infant fulfillment of these needs, we stifle his emotional and social life.

Sometimes we have to defend this point of view against vigorous and varied, and often quite violent, objections. The pediatrician is apt to be shocked by what appears to him a new menace in his hard-won fight against germs, and an inroad on the principles of nutrition and digestion that have been worked out so painstakingly. Trained nurses are disturbed because they have been rigidly taught that handling tends to spoil an infant, and that emotion, even when recognized and well controlled, is an influence that must not be allowed to enter the sacred halls of science. Parents on their part are bewildered because doctors seem to be at odds, and so are their own emotions. They are often given to understand that fondling or any show of affection will foster dependency, that evil weed that begins with feeding and behavior problems in childhood and flowers into the more serious forms of emotional dependencies in adult life.

It is obviously true that unwise attention prolongs dependency and thus spoils a baby. But mother love is a good deal like food; we do not stop giving it because the child may get too much or the wrong kind. It has to be expressed regularly so that the child expects it; a little at a time, and frequently, is the emotional

formula. When it is given in this way independence, rather than dependence, is fostered. For independence is the outgrowth of a feeling of security and completeness, whereas the deep dependency of the first months of life is a natural biological condition which characterizes babies, and not a trait which has been produced by too much care. Assurance comes with inner growth but only if this is accompanied by love which must not only be abundant but consistent. It cannot be given to the child simply because the mother happens to feel in the mood. Babies become demanding when they are given a great deal of attention and then deprived of it. The art of mothering is to discover and satisfy the particular need of the individual child.

Several highly intelligent mothers in discussing this fact made the statement, "My baby does not like mothering; he begins to cry and kick when I pick him up . . . he likes to be left alone." In such cases it was invariably found that a fundamental, though usually unconscious, dislike of children and a dislike for the feminine role, based on long-forgotten painful experiences in early life, featured in the attitude of the mother and was sensed by her child.

Not every woman can mother a child, even though biologically she may be capable of giving birth. The phase of mothering which comes immediately after birth reflects inevitably her own upbringing, to which other emotional relationships have contributed. The woman who is herself emotionally sound and whose deeper needs are satisfied in the marriage relationship gives her child this love without the help of a pediatrician or a psychiatrist, just as naturally as she secretes milk. Unfortunately, however, our highly impersonal civilization has insidiously damaged woman's instinctual nature and has blinded her to one of her most natural rights—that of teaching the small baby to love, by loving it consistently through the period of helpless infancy. It is for this reason that the modern woman may need help and guidance in her relationship with her baby. She needs reassurance that the handling and fondling which she gives are by no means casual expressions of sentiment but are biologically necessary for the healthy mental development of the baby.

II. OXYGEN HUNGER

THE BABY'S first cry is awaited with great interest. Probably never again in his lifetime will his vocal self-expression be listened to with so much absorption and relief. In fact, so dramatic is the birth cry, so sudden and clear and reassuring, that it is apt to be interpreted at too mature a level. Parents and relatives, their anxiety at an end, usually infer from it that breathing is a function that is now well established and self-regulating. Now, in any such cheerful conclusions there is both truth and error. When the newcomer slips off the ways into life's sea, his breathing motors are incomplete and incapable of regular functioning; weeks must pass before he can be allowed to venture from shore. In other words it is true, of course, that the wailing infant breathes, but this he does with pitiable inadequacy. He has at birth an inner adjustment to make which is much more drastic than that of the aviator or the deep-sea diver. He must have help to keep his breathing mechanisms running smoothly.

Physiologically we know that the first cry is an emergency form of breathing. In the beginning, it is a bellows-like action of the diaphragm which serves alternately to expel fluids from the lungs and to suck in oxygen. The sound element at this time is largely incidental and is in all probability due to a valvelike action of the vocal cords as the air passes in and out.

An actual breathing dilemma confronts the baby at birth, a serious and uniquely human dilemma. As the eminent pediatrician and physiologist, Professor Brock of Marburg, expresses it, "The young suckling child lives constantly in a condition of 'physiological insufficiency of breathing.'" * Despite the fact that oxygen is plentiful in the air, the infant continues to be in want because of the immaturity of the breathing apparatus and also because his body is adjusted to breathing by way of that highly important prenatal organ, the placenta.

* Brock, *Biologische Daten für den Kinderarzt*, II, 9.

Since the baby needs help in breaking this deadlock, his early dependence on the mother can be seen to have roots in a basic biological activity—respiration.

To appreciate the gravity of the breathing dilemma at birth and to understand why it is peculiar to mankind, we must study some complicated facts of human development.

Scientists have recently learned from important research that the brain's internal breathing, or metabolism, is more intense during early growth than it is later; moreover, that part of the brain which is characteristically human, the so-called gray matter, requires twice as much oxygen as other tissue for development. Obviously, then, there must be a high demand for this essential element in the first months of life.

The prenatal baby, having no access to the outer air, breathes from the placenta through the blood. This ration (another shaft of inquiry reveals) becomes scant as his nervous system matures. Blood analysis shows that the baby, somewhat like a person living in an extremely high altitude, endures a condition of progressive oxygen privation.

This background of oxygen want gives to human birth an element of uncertainty which is unparalleled in the animal kingdom. Man's brain, in maturity his greatest asset for survival, seems to be a burdensome liability while he is making his entrance into the world. Protracted delivery may cause permanent damage to young brain cells by prolonging an already keen need for oxygen. The offspring of the lower mammals, though they share the vulnerability of our young to mechanical birth injury, are probably immune to this more subtle danger; their brain development uses so little oxygen that a temporary lack of it causes no significant damage. Rarely, for instance, do animals suffer from birth paralysis.

Also after birth the human brain is for many months a burdensome possession, making the child, in a biological sense, property poor. Its upkeep and growth take a lion's share of the developing body's oxygen supply. Yet the body, particularly the chest, must develop further before there can be adequate intake of air. This

is the breathing dilemma to which we have referred, a dilemma which must be solved for the sake of the child's whole future mental life.

It was once believed that the first cry was an indication that the infant suddenly has made the change from the vegetative life within the mother to adequate air breathing. We know now that the change is a long process of adjustment to a new environment. Actually the way is long and development is slow, handicapped as the baby is by oxygen want and also by another factor which we must now consider. The second obstacle is the persistence of prenatal physiology which tends to outlast its usefulness. This happens more often than we might think. The newborn cannot unlearn in a moment what he has been practicing for months!

As has been recently established, definite respiratory movements occur while the child is still inside the uterus. Obviously this is not air breathing, since the foetus lives in a liquid environment and the chief source of oxygen is the maternal placenta. At this time the blood is the breathing medium. What does occur is this. Oxygen is stored in the blood cells of the baby's liver, which before birth is a blood-making organ and also acts somewhat like a lung, receiving freshly oxygenated blood from the placenta. The muscle of the diaphragm arches over it, cup-fashion, and exerts suction on this oxygen supply. This action is thought to draw fresh blood toward the developing lungs and brain. Certain body movements of the baby assist the diaphragm —twisting, flexion, and extension of the torso before birth, and after birth the familiar wriggling. The chest, itself, with its tiny intercostal muscles, at this stage is unable to assist with breathing. It cannot rise and fall with each breath because of its peculiar structure; the ribs, flaring widely at the waistline to accommodate the liver beneath, either run horizontally or else tilt slightly upward. Thus for many weeks the baby's chest is fixed.

Occasionally this prenatal form of respiration can be easily observed when infants fail to breathe right after birth until the cord is tied. What we see in these rare cases is spasmodic upward suction movement of the diaphragm, with flattening of the ab-

domen. This is followed by relaxation with marked protrusion of the abdomen as air flows into the lungs and crowds down the liver and intestines. Some understanding of prenatal breathing explains what would otherwise seem a strange paradox.

Early crying consists then of a series of more or less violent expirations. When the newborn is not crying, breathing is usually so shallow and rapid that it is often impossible to count, but mechanical recordings show that here, too, expirations are more prolonged than the sorely needed inspirations. One would naturally expect the latter to predominate, in view of the baby's known oxygen hunger. Only on the basis of past performance does this behavior make any sense at all. After birth the muscle of the diaphragm is learning to reverse itself, to suck downward and draw in air, after months of upward suction. Of course such a drastic change as this takes time. It also takes time for the previously idle chest to acquire an active role.

The baby is hampered indeed, then, by all the factors which we have now considered. We come next to the crux of the matter —what can be done to help him? In what way can mothering facilitate his breathing?

Obviously, a mother cannot teach her baby to breathe. She cannot show him how to abandon any vestige of foetal technique, how to expand his lungs and make respiration secure until the all important brain centers which insure its performance are mature.

What she can do, however, is to furnish the stimulus which is necessary to bring important reflex mechanisms into action. It so happens that the baby's first response to her touch is respiratory. It happens that her handling automatically initiates deeper inspiration and helps in its establishment. From being held, fondled, allowed to suck freely and frequently, the child receives reflex stimulation which primes his breathing mechanisms into action and which finally enables the whole respiratory process to become organized under the control of his own nervous system.

There is an ancient belief, still current, that babies who sleep with the mother are in danger of suffocation. This bit of folklore

is for the most part a reversal of truth. Since the contacts and warmth afforded by another human body are a protection rather than a peril to the infant, he sleeps more safely at his mother's side than in the stimulus-free seclusion of a modern nursery. In certain continental hospitals where this fact is appreciated, each maternity bed has a small basket fastened to its edge. The young baby is never for a moment beyond his mother's reach, for it is vitally important to observe the breathing and to stimulate it by consistent personal attention.

We have used the word "important" advisedly. Perhaps the reader wonders why it is important for mothering to hasten the baby across the bridge, in lieu of letting him choose his own unhurried pace. There are several reasons.

In the first place, if prenatal breathing persists, a state of inanition may occur. Although for a short time after birth the child has two sources of oxygen—the outer air and his own liver—he must not rely too long on the latter source, which is meager and fast diminishing. In the second place, prolonged oxygen shortage may produce damage not evident at the time but of peculiar importance to future mental life.

This is the story: While outer breathing is being established, so also is the inner breathing or metabolism of the nervous system, this inner breathing depending on the outer, of course, for its oxygen supply. Now if the baby's respiration fails to develop on schedule, metabolism must operate on short rations and the growing cells of the brain may suffer in consequence. The caliber of developing blood vessels may not become sufficient for the irrigation of nerve cells; the myelin sheathes which protect and nourish the nerve fibers may not complete themselves; brain metabolism itself may become established on a poor basis. Such handicaps as these can make an individual biologically unfit to meet the stress and strain of later life. In other words, his subsequent ability to "take it" may hang in the balance during this early period.

The importance of mothering in helping the child to breathe at such a time can hardly be overstressed. As to the amount of

stimulation optimal for breathing—here the average vigorous child himself makes certain lusty announcements, for it happens that excessive crying is significant in this connection.

The quiet baby has to be watched with special care. He may be too weak to cry. Early crying is largely a breathing exercise, simply the child's automatic adjustment to post natal respiration, and consequently one or two spells a day are of distinct advantage. However, if crying periods continue for longer than five or ten minutes, an investigation should be made immediately, and some simple measure used to assuage oxygen hunger. Stroking the child's head, allowing him to suck on a clean pacifier, or carrying him about, usually will relieve the condition. Tipping his head down helps to bring a fresh supply of oxygenated blood to the brain.

Therefore it is important to note in the first months of life the breathing and crying of a baby, which are invaluable indicators, as they show whether his life schedule is actually answering his oxygen needs. The advice, "let baby cry it out," does not apply until much later. Infants should be soothed promptly since the crying of the first weeks signifies emergency breathing.

At last comes the day of respiratory independence, and the infant himself announces the fact! Amusingly enough, his first babbling syllables, however meaningless they may be according to usual standards of speech, do tell us one thing: that an inner balance of oxygen has been reached. No longer so dependent on the touch of the mother for stimulation, the baby himself is able to experiment with his new-found breathing abilities and he does this through vocalization, a mutual delight to himself and to his mother. Another indicator of this novel and delightful state of freedom is the smile which often precedes or accompanies babbling and which seems to mean release of facial tension.

Some babies who have had wise and consistent mothering begin to vocalize and smile in the second month. Others who have been left too much alone or else have been inconsistently handled are delayed until the fifth or sixth month or even much later. These unfortunate infants often have serious difficulty in their

speech development and are slow in talking. In our study we found a definite correlation between the development of talking and the adequacy of early care; not only did the well-mothered babies vocalize sooner but also their speech maintained a smoother and easier progress.

Such facts as these show that the story of learning to breathe does not end with the baby's achievement of respiratory independence but continues through this interesting and complicated process of learning to talk. There is a close relationship between breathing, sucking, and speech.

To bring into practical use the somewhat complicated facts introduced in this chapter let us summarize:

1. "Mothering" a newborn baby helps him to breathe by bringing into action certain nervous reflexes which insure proper and necessary respiration.

2. This early oxygen supply is a factor in starting the fires of life in the rapidly developing brain cells; hence, it is one of the first steps toward mental functioning.

3. Good breathing determines smooth speech development and is throughout life closely related to both physical and mental health.

III. SUCKING

IN THIS CHAPTER, the author is faced with a problem, and the problem is the reader, who is likely to think: "One whole chapter on sucking? What nonsense! Any child knows how to suck."

New ideas in the scientific field very often do sound ridiculous at first, yet sometimes the things that strike the practical person as humorous at first sight become less and less so as we learn more about them. A large number of parents with whom the writer was closely associated during this study of babies found the subject of sucking extremely disgusting. For this reason it was difficult for them to make observations which are necessary in order to estimate their babies' needs. It took a great deal of persistent application and effort for them to acquire a sympathetic understanding of the subject.

It is vitally important to be able to see the child from his own point of view as a struggling organism that may be having a hard time, as well as a pleasant time, developing and getting used to living. His whole psychological attitude toward the world, and toward himself, as to adequacy or inadequacy, is started far back in his first experiences. If he is not functioning according to plan —Nature's plan—he is not going to feel well. His sucking may appear funny but when you understand the many aspects of this primitive mouth activity the humor fades out of the picture.

During the first three to six months of an infant's life, sucking is his most gratifying and all-absorbing activity. This function is regarded by the majority of people as simply the baby's way of ingesting his food. The mouth with its delicate sensitivity and elaborate muscular equipment is considered merely the upper end of the digestive tract. However, aside from the intake of nourishment this fuction satisfies important psychological needs. The baby is not only filling his stomach; he is getting his first taste of the outside world and the first grasp or hold of which he is

capable. His initial sense of security, of pleasure satisfaction and success, is closely linked with his mouth activity. Close study of sucking behavior in a large number of babies has thrown light on the relationship of this fundamental activity to speech and other expressions of mental life; hence, the great necessity of making it easy and pleasurable.

Sucking usually reaches a maximum intensity about the fourth month of life, and, if it has been fully and agreeably exercised to this time, begins to diminish spontaneously when the baby begins to vocalize, to bite, and to grasp with his hands. The very close interrelation between these various functions can be interestingly observed in this early period of life.

Another important aspect of this basic function is that it brings a better blood supply to the head and face, thus contributing to the progressive development of the facial muscles and probably to the brain itself.

Most important to the infant himself is the pleasure value of sucking. This is easy to see once we are able to sympathize with the baby's viewpoint. Pleasure is the principle on which the young child accepts or rejects. At this age it is the biological criterion of good and bad—and no Emily Post is going to make an infant pretend anything different.

When the function has been well established, made easy, and exercised for a number of times, any observer can see that the child is getting what he wants. This is true whether or not an appreciable amount of food has been taken. It has been found, in the hospital routine of weighing a baby before and after nursing in order to estimate how much food he gets, that a large number of infants in the first weeks of life nurse quite contentedly without ingesting any great quantity of food. The mouth activity relieves tension and establishes relationship with the mother in an important way. Thus the budding emotional and social feelings, as well as early feeling of the self, are connected with oral activity. If we follow through subsequent stages of development we find that three types of activity arise from this primary oral function: nutritional (the tasting or chewing

of food); emotional (smiling and kissing); intellectual (word making).

Mothers will also be interested—perhaps too interested!—to learn that the child's looks will be influenced by sucking, because it develops the muscles around the mouth and eyes and later affects the mode of speaking as well as the facial expression. Of course, this also depends on the mothering that goes with the sucking.

It is an interesting fact that primitive people have always sensed intuitively the importance for babies of the immediate establishment of sucking. The Sioux Indians, for example, prepare a berry juice which they give to the child at frequent intervals during the first twenty-four hours in order to stimulate the mouth and relieve thirst. When the secretion of the mother's breast is thought to be established and the baby becomes restless and shows some mouthing activity, an old woman of the tribe, who is designated for this particular rite, rubs the inside of the infant's mouth with her finger to prepare for the initial act of sucking.

A custom which is performed at all births among certain tribes of South Africa is described by Laubscher: "As soon as the child is born, it is given first some special medicine and thereafter put to the breast. This is a dramatic moment, for should the baby refuse to drink, the mother is suspected of being associated with witchcraft. If the child behaves normally at the breast, the custom of Futwa is performed. The branches from a tree called Minikandiba are put on a fire in a spot where the woman was confined and not in the recognized fireplace in the center of the hut. If the child cries, the smoke is considered to have a beneficial effect. . . . The emphasis put on the child's crying suggests that this is a method for stimulating deep respiratory movements." * Intuitively these people have instituted rites which help the infant get the use of this first behavior which brings about coördination between sucking and breathing.

One wonders why our modern civilization does not include

* Laubscher, *Sex Customs and Psychopathology*, chap. iv, p. 68.

recognition of a mechanism which is of such deep biological significance and marks the beginning of mental life. Unless a baby is actually cyanotic or his sucking reflexes are entirely undeveloped, no especial attention is paid to the functional integrity of this vitally important nervous mechanism, and no provision is made for its frequent and rhythmical exercise. Perhaps we unconsciously try to hurry the infant over a period which seems to us too close to the animals. Our infants may suffer from the false delicacy which makes the very word "sucking" something to be avoided.

If we summarize briefly what the embryologist has to tell us about the way in which the mouth develops in human beings, it will help to explain why so many functions are fused in the first oral activity. The lining of the oral cavity is developmentally a part of the skin which has become folded in to form a pouch. This indicates that the mouth is fundamentally an organ of touch. Its nerve supply comes directly from the brain through five different cranial nerves. In the first weeks of foetal development, nose and mouth are one cavity, separated from the digestive tract by a membrane which sometime later breaks through and disappears. The mouth is thus in the beginning a large pocket just beneath the brain, with which it is connected much more closely than it is with the stomach.

The hard palate, which will separate the nose and mouth, begins to develop at about the sixth week of intra-uterine life. This structure is peculiar to sucking animals or mammals and plays the important role of dividing the mouth into an eating and breathing cavity. It might be compared with the diaphragm, another structure peculiar to mammals, which divides the body into the chest, or breathing compartment, and the abdomen, or digestive apparatus.

The tongue muscle, which is to be the chief organ for sucking and later for speaking, begins to develop in the embryo while the mouth and nose are one continuous cavity. Its origin is very close to that of the heart and its fibers are much like those of the heart muscle. It is located first directly over the main artery to

the head, suggesting that its first function has to do with pumping blood toward the brain. In this early capacity it is perhaps both the nutritive and the breathing organ for the brain. In its development it migrates upward into the floor of the mouth and begins to take on new functions. The upward pumping of its first activity is directly the reverse of sucking. This action is sometimes seen, therefore, in premature babies who have had difficulties in establishing postnatal sucking. It is also seen in Mongolian idiots who constantly protrude and retract the tongue. Some embryologists think that the tongue at one period of development acts like a valve which keeps the amniotic fluid from going into the infant's lungs. The tactile function of this important organ probably begins about the seventh month of foetal life. Its pumping action brings it back and forth across the sensitive hard palate and this is in all probability the first direct tactile experience of the individual. The tongue thus has manifold functions in the course of its development. Its intimate connection with the brain and its relation to early mental life is evident from the variety of cranial nerves which supply it. This connection is finally expressed in speech. The nerves which supply the tongue, the diaphragm, and the sensory lining of the mouth, are all correlated in the sucking reflex, and around this important mechanism the sensory life of the infant develops.

Sucking is then a part of the instinctual behavior with which the child is equipped at birth. Some babies suck vigorously on their fingers as soon as the head is delivered, and this activity recurs at more or less rhythmical and frequent intervals. Nursing is no problem to them. However, the spontaneous mouthing movements which are present in most infants at birth are not well coördinated. They are a form of the rhythmical activity found in all muscles. Many infants when placed at the breast for the first time fail to respond with effective coördinated sucking. Several guided performances are necessary before either breast nursing or bottle feeding develops into the vigorous and effective activity characteristic of the well-adjusting baby. In the group of six hundred infants studied in our research, at least

40 percent had to be taught to suck in the following manner: the mouth was opened by the nurse or mother, the nipple inserted well inside the mouth cavity, and the chin of the baby worked rhythmically up and down.

What actually does this maneuver accomplish? Fundamentally, it brings about a simultaneous stimulation by the nipple of the upper surface of the tongue and of the hard palate. This stimulus is necessary to activate that important part of our nervous equipment known as the sucking reflex. Without assistance on the part of the mother to insure this kind of oral stimulation, the first sucking of the child is ineffectual and slow to develop into the all-absorbing performance with which we are familiar.

It is the custom among European peasants to place a pacifier in the child's mouth immediately after birth. If done judiciously, this is an excellent stimulus for the sucking reflex. In this country the Negro mammies of the South make a great ceremony of preparing a "sugar rag" for the coming infant. This is made of bread crumbs and sugar tied in a soft piece of old linen cloth and moistened before being put into a baby's mouth. These Negro women often give their own babies a piece of fat bacon, thoughtfully tied to a string in order to retrieve it should it be swallowed! In this way they stimulate sucking and help the infant get satisfaction from his first adaptation to life outside the uterus. The wisdom in this traditional custom is shown by the fact that infants in the care of these Negro mammies very rarely have difficulty in the immediate establishment of this function. The baby's stimulus hunger is satisfied in this way and he is given advance practice in the art of sucking before food hunger becomes too urgent. We must not, however, overlook the fact that the ability to appreciate an infant's needs may be due to a primitive outlook that may prove inadequate in understanding later problems. The colored mammies are not so aware of the subsequent readiness of the baby to progress to new activities.

The most striking evidence of the importance of the immediate establishment of vigorous sucking is the well-being, or good general adjustment, apparent in the infant as a result of successful

nursing. Most people attribute this entirely to the satisfaction of food hunger. This is by no means the case, because the average breast-fed baby gets in the beginning only a few teaspoonfuls of milk with each feeding, and this first milk has not a great deal of food value. It has been shown that the system of the normal infant (like that of his vegetable cousin, the sprouting bean!) is loaded with nutritive material which he is not able to utilize until breathing and nervous activities have become well established.

A specific reaction to vigorous sucking is seen in the respiration of the baby, which was emphasized in the last chapter. Shallow and irregular in the beginning, it deepens with the sucking, and the tendency to frequent paroxysmal crying diminishes. The muscle tension of the child relaxes temporarily during the sucking and random movements are quieted. The color and temperature of the skin become more normal. The sleep which follows well-established sucking is the beginning of true body rest and not the uneasy semiconsciousness which characterizes the newborn child.

Very quickly rhythmic intervals become established in which the infant shows evidence of the beginning of a "wish to suck" and in close relation it can be seen that a certain alertness or awareness is developing.

How do we know, then, that this change in the child is definitely connected with sucking and is not due to inner developmental processes? Chiefly because babies who have trouble with the establishment of sucking invariably show a disorganization of these same physiological activities, that is, breathing, circulation, and muscle tone. When, in order to give quickly to a poorly nourished child sufficient quantities of nutriment to maintain weight, a medicine dropper or tube is used, the infant so fed is listless and has a distressed or pinched look and is inclined to remain constantly in a half-conscious state. When the usual stimulus is absent and the child is entirely passive, the absorption of the food is poor and nutrition itself becomes persistently defective. This form of feeding is only a makeshift and cannot

be continued over long periods without damage to the nervous functions of the mouth.

Toward the end of the second month, we can see that sucking has become associated with other sensory activities. The most striking connection—and one very pleasing to the mother—is with the eyes. Most babies nurse at first with the eyes closed. Even when open, the eyes show little tendency to fixate for more than a fleeting moment. As sucking becomes easy and gratifying, the infant begins to show "eye attention." First he appears to look at the face of his mother, which at this time probably registers only as a patch of light moving about. (However, she has a flattered feeling that she is being noticed.) Somewhat later, the baby looks for the breast. When the eyes have begun to fixate quite definitely and to follow the movements of the mother for periods of several seconds, an important moment has arrived —the eyes begin to share with the mouth in this relationship, the first of life.

As the mother talks or sings to the child, the sound of her voice also becomes associated with nursing. By the end of the second month, in cases where no disturbance has occurred in the nursing relationship, the infant turns his head at the approach of the mother and looks at her, often giving a fleeting smile of satisfaction—her reward! (And, at least, more than the demanding nestlings ever accord to their overworked parents.) But she knows, and close chronological study of these progressive reactions indicates, that through the medium of the mother's person and the delicate assistance which she gives, elaborate functional associations are being built up in the baby's brain. Babies who do not have consistent mothering are definitely less well equipped and do not seem to understand in later life such simple matters as loving and being loved.

As the processes of touch, sight, and hearing thus become integrated with the mouth activity, the hands and arms begin to coördinate. It is well known that from birth the hands have a tendency to seek the mouth in a haphazard fashion. In order that feeding may not be interrupted, the mother often holds

the free hand of the baby away from his mouth. The baby automatically clasps and unclasps his hand around the finger of the mother. Later on, while he is sucking, he may feel or reach for the mother's finger, his own ear or nose, or some part of his clothing, and this associated behavior assists the hand in assuming its later touching and grasping function. By the end of the third month, in well-mothered babies, the uncoördinated movements of the hand and arm have begun to give way to definite reaching and grasping activities. By the end of the fourth month the average baby reaches his arms definitely toward the mother.

Mouth grasping and hand grasping in this early period, and for some months of life, are practically interchangeable. The infant explores the universe with mouth as well as hand. Give the child a toy and into his mouth it goes, giving us the false impression that all he cares about is, "Is it good to eat?" We forget that just as our fingers by closing around an object give us a quick "feel" of its shape, so the baby's mouth, more experienced than his fingers, can take in a new shape and surface. It is not unusual to see a year-old child reach for something with his mouth if his hands are engaged, and it is much later in his development that he makes a precise distinction between food and play objects. Thus a close association exists between muscular grasping or groping and the development of the first mental grasping. It is significant that we use the same verb for both processes. It seems highly probable that sucking is the primitive biological activity which serves as a foundation for the development of the infant's emotional hold on the mother, his curiosity and orientation toward inanimate objects, and finally, his dawning recognition of those realities which are the basis of his learning. He drinks in with eyes and ears as he stares and listens. Later he will express some of his reactions by way of the mouth. In this way sensory experiences contribute to the development of speech, which we recognize as an advanced form of true mental expression. In infants whose sucking activity is limited and who do not receive the mothering which stimulates response in the sense organs, speech is definitely retarded.

Most modern pediatricians hold that a healthy, well-developed baby digests his food better if he is not fed frequently, so that the stomach completely empties itself and has a period of rest. A few maternity hospitals adhere to the three-hour interval for meals. The majority, however, use four-hour intervals and in some cases the attempt has been made to put fairly young babies on three meals a day. It is possible to do this without too much privation and nervous consequences, provided the infant is given water in the interval and is allowed to suck sufficiently so that he gets both oral and gastrointestinal exercise. However, it was found in our studies that young babies on the three-hour schedule were organized better and much less restless than those fed less often, even though both received an identical amount of food. In the well-nourished baby, the tension of waiting for food is not as great as the nervous tension created by insufficient mouth activity. In other words, infants cannot live by food alone. And right here we reach a place where we must stop and do some careful thinking, for it is clear that the problem of the mother is not only to satisfy food needs of a baby but to help him feel secure and to understand him as a human being who is loved.

The term "stimulus hunger" will often be used in these pages and perhaps sounds impersonal. What this terms means is an inborn need preceding the true emotional longing for the mother. There is a difference between physiological responsiveness and psychological responsiveness. The former is the responsiveness of the body to such needs as food and warmth. This responsiveness is not very different from the responsiveness of your car to good gasoline and the right temperature. But psychological responsiveness is well-being which awakens the whole organism and leads to alertness and attention. This need must be satisfied as well as food hunger to which it is so closely related.

An attempt was made to differentiate between the baby's food hunger and stimulus hunger in order to determine how much actual sucking exercise is necessary for the child's well-being, as well as how much food he requires. This was done by weighing breast-fed infants before and after feeding, and by timing

the spontaneous sucking activity. It was found that two hours a day was the minimum oral exercise in the well-developed baby, while immature or premature infants needed a great deal more. This minimum when used as a basis for feeding, from after the first week of life until the fourth month, would mean six meals a day, lasting approximately twenty minutes each. If the child ingested his food in less than twenty minutes, it was found he invariably sucked his fingers afterward for sufficient mouth exercise.

The mouth of the baby must have special consideration as an organ, the use and stimulation of which arouses the first sense of well-being and pleasure and definitely furthers mental development. At the same time, however, it must be remembered also that babies who are not held and fondled, or normally mothered, show excessive sucking habits and frequently take too much food, thereby bringing about digestive upsets as a natural consequence. This is particularly true of bottle-fed babies who must be regarded as deprived individuals unless the mother succeeds in showing her love through other forms of attention. The concern of the average parent over thumb sucking, and the energy given to the checking of this habit when it has once developed, is usually unnecessary if provision is made to satisfy adequately the baby's sucking impulses as well as other forms of stimulus hunger.

The experiment was tried of giving a group of babies rubber nipples or pacifiers as soon after birth as restless or mouthing movements were noticed. Some infants began to suck at once, and their restlessness was immediately quieted. They relaxed, relinquished the nipple in a short time, and fell asleep. The sucking impulse was satisfied in the same way that food hunger is appeased by the ingestion of food. In no case did sucking develop into a habit, except in those infants who fell ill or for some reason were not getting enough satisfaction from mothering.

Since sucking is a function which will be soon replaced, the best arrangement, where possible, is to follow Nature's cue. In normal breast feeding, which is without question the ideal form

at least until the teething period, the various instinctual hungers are self-regulated. The amount of flow of the mother's milk and the time and effort needed by the baby to extract it usually correspond nicely with his needs. The contact and fondling give the necessary passive stimulation. Artificial feeding immediately introduces the necessity for a careful regulation of sucking time coördinated with the flow of milk from the bottle. Holding, before and during the bottle feeding, is obviously necessary.

From a nutritional viewpoint alone, of course, enough evidence of the value of breast feeding to the infant can be cited to establish thoroughly its superiority over bottle feeding. But even in this regard, subtle factors are often overlooked. For instance, a breast-fed baby, if given breast milk in a bottle, will often refuse it, thus giving evidence that for the infant more is involved in breast feeding than the simple ingestion of food.

From the emotional point of view, the subtle factor entering into the situation is the question of well-being and security. We know, in our own adult experience, that our food does not "agree" with us if we eat alone or under unpleasant conditions, that is, if we are angry or worried. This same situation holds for infants only in greater degree. Children not infrequently refuse food altogether when they feel themselves unloved. But when, even then, food is taken under such conditions, unquestionably digestion proceeds less successfully than under happy emotional circumstances. When we realize that an infant has no capacity at birth to get a sense of security except in the feeding relationship, we appreciate the strong emotional factor involved in the question.

Breast feeding is the first satisfaction a child gets from his mother after birth. This pleasure immediately begins to establish a focus on the mother and prepares the ground for the fostering of a continually richer relationship between them. As a result, the breast-fed baby is better nourished and his emotional development is smoothed considerably. For, naturally, breast-fed babies tend to have more trust and confidence in their mothers and consequently are easier to lead and direct.

Breast feeding is of the very essence of "mothering" and the most important means of immunizing a baby against anxiety.

There is probably no question which so frequently agitates the family atmosphere as the question of sucking habits. Perhaps the facts presented in this chapter have clarified this matter so that unusual or prolonged sucking may be avoided.

We must not permit ourselves to forget that this is a developmental activity in the infant and must be regarded as such, whether it is directed at breast, bottle, or thumb. In the light of this understanding, the mother has to insure its frequent, satisfying, and regular exercise during the first months of the baby's life. If an infant sucks vigorously beyond the artificially appointed time, he is probably satisfying some need of his individual constitution and should be allowed to go on without interference, until his developmental needs are satisfied.

The sucking habits, which are found in the older child, must be carefully traced to their source in order to be intelligently treated. There are two primary causes of thumb sucking. First, the child has been frustrated in the early months so that he has not had free and satisfying sucking experiences. Second, he has not had enough mothering to relieve body tensions and to satisfy other stimulus needs. What must be recognized is that sucking is the infant's panacea for tension states. To meet a sucking problem adequately, then, one needs to try first to discover the source of the tension, and second, to supply the child with other means of relief.

Sucking, once again, is a developmental activity of the greatest importance to the infant. And the primary factor enabling him to pass through this stage successfully is the same factor we have discovered in relation to other functions: the understanding love of the mother.

IV. LEARNING TO FEEL

We may reasonably suppose that the most intense feelings of a baby are centered in his hungers and their satisfaction. We know that there are three primary hungers to which babies give strong evidence of reacting. In all probability these three are felt in a general way as bodily discomfort or tension, and not as specific needs which the adult distinguishes. These hungers are so closely related in the beginning of life that they are often difficult to separate, even with the closest and most careful observation. All three are satisfied most readily through the mouth. We get our clearest information about these hungers through the reactions of the infant when they are not appeased. Our babies are keenly oriented to food hunger, oxygen need, and aloneness.

We have now to say more about other kinds of sensitivity which characterize newborn babies. In discussing stimulus hunger, a young mother in our study group, hearing for the first time the ideas in regard to necessary stimulation for the infant, remarked, "You mean that you want me to jiggle the baby the way my grandmother used to do?" In reply to this characteristic question we might answer that most normal babies respond well to a certain amount of jiggling, or general vibratory stimulation, if judiciously administered. However, it is necessary to consider the actual stimulus need of the individual child and to plan methods for satisfying this need just as carefully as we regulate food intake. Overstimulation is as damaging as is too much food, and to the highly sensitive infant it is a distinct shock, whereas lack of stimulation may result in inanition or in habits of self-stimulation which may become exaggerated and troublesome.

Three types of feeling are known to be well developed in babies at birth. The sense of touch, as we have already seen, is best developed in the mouth. The face and head are also extremely sensitive and the gentle stroking of the head soothes a

restless infant in a remarkable way. There is an old superstition that the head of a small baby should not be touched because of the so-called soft spot where the skull bones are incompletely developed and where part of the brain surface on top of the head is covered only by the scalp. Some mothers are afraid to wash their babies' heads because of this! The infant could never stand the process of birth if his head were so delicate.

In the general skin surface the sense of touch is not so well developed at birth but is brought out through grooming and body care. From the time of the first bath, the entire skin surface needs this stimulation. There is a great deal of discussion among obstetricians and pediatricians as to whether oil baths, soap and water baths, or no baths at all, are better in the first days of life. The psychologist finds that the baby himself answers these questions in the response of general well-being which invariably follows whether the bath is a warm dip, a spray, or a body massage with an appropriate oil. Unless some skin disturbance is present, cleansing is a secondary consideration at this time. The circulation of the child and his reflex activities definitely benefit by the friction rub connected with the bath. If it were not for the mental attitude of nurses and mothers toward cleanliness, many babies would suffer actual neglect of their need for skin stimulation.

For wisdom let us turn to the humbler animals. It is a matter of common observation that, beginning with birth, the cat mother licks her kittens all over several times a day. The mewing of the kitten immediately brings this attention and the cat mother is never long away from her offspring. Thoroughbred kittens who do not get this attention develop various functional disorders, such as vomiting, constipation, or diarrhea, and frequently die. The human mother is apt to read into these licking activities a purely cleansing implication. What she does not see is that it is a relational activity between mother and young which is reassuring to both. This is similar to the primary arrangements which the biologists call symbiosis, through which Nature links together two organisms with mutual benefit. A cat

deprived of her kittens will wander around restlessly for days, licking her owner or a suitable object. Frequently she adopts some young animal which may be at hand on which to lavish her maternal attention.

Scientists who have studied the grooming behavior of anthropoid apes report the same findings. The young who do not get this grooming care, but are for some reason separated from the parent apes, sicken and frequently die.

In a personal communication to the writer the late Dr. Charles Stockard, of Cornell University, reported that puppies bred in his laboratories were unable to eliminate until they had been licked all over by the mother. Valuable animals were lost in this way because the keepers did not recognize the fact that this licking stimulus is necessary for young animals. They believed that the puppies who died had been poisoned.

To the average mother, all too often bathing and grooming is simply a hygienic process to be performed conscientiously and thoroughly. She does not recognize the fact that in these activities an important contribution is made to the child's personal relationship to her. Checking the neatness schedule is not enough. A real mother must recognize that her baby's bath is not only a cleansing process but something that is to the baby an experience in feeling which contributes greatly to his comfort and nervous well-being as well as to his awareness of his own body.

One mothering activity which is invariably overdone is that of diapering. Many mothers and nurses spend the better part of their time in attempting to keep the small baby dry. This is largely unnecessary, except for the comfort of the adults handling the child. For the infant himself it is usually a disadvantage because it focuses his developing attention on this part of the anatomy. Many mothers brag that they use as many as forty diapers a day "in order to teach the baby cleanliness right from the day of his birth." As a matter of fact, what they are doing is precisely the opposite. Unknowingly, in this way they teach the child to get attention, which should come through other avenues of stimulation, and they thus develop emotional reac

tions which become deeply involved with the function of elimination. Unless a healthy baby is cold or chafed he is not in the least disturbed by being wet, and six diapers a day are ample unless the child is ill. It is difficult for mothers to grasp the idea that the baby is a person and not merely an eating or eliminating automaton.

Special significance comes into the cleansing of the nose, mouth, ears, and other body orifices of the young baby. All these zones are extremely sensitive. This fact is not always recognized in hospital routine where it is customary to use swabs in a more or less perfunctory manner, again with the emphasis purely on the cleansing idea and not on sensitivity. The mental attitude of chasing dirt with a stick may be suitable for floor cleaning but should be restrained where works of art are concerned and has no place whatever in baby handling.

The second type of feeling which is well developed at birth is the sense of body position, the kinesthetic or muscle sense. If a baby is placed on a flat surface so that the body is free to roll in any direction, he reacts immediately with a startle and cries. (In a crib the child sinks slightly into the mattress so that he feels a certain support.) If lifted suddenly or carried carelessly, the same reaction occurs. Many babies in our study group did not nurse because they were held insecurely; that is, the mother was either inexperienced and uneasy, or else she was paying no attention to the child because of preoccupation with other matters. On the other hand, gentle movement, firm holding, frequent changes of body position, and rocking, caused fretful infants to nurse contentedly. This primitive sense of position is extremely important in the development of a feeling of security in the infant.

From earliest times devices have been created for the satisfaction in babies of the need of rhythmic movement although for the most part the significance of the need was not known. Foremost among these devices, from the point of view both of time and of universality, stands the once-honored cradle. This quaint piece of furniture nicely takes the place of the rhythmic activity of

the mother's uterus and the swaying movements of her body with which the child was familiar before birth. The cradle, therefore, has a sound biological basis when it is used judiciously. It is extremely unfortunate for the infant that the cradle has been discarded along with the comfortable rocking chair which used to be such an important item of furniture in any well-ordered nursery. Their disuse seems to be due to the inability of the adult to recognize when the infant is ready to substitute his own activities for passive rocking.

The Negro mammies of the South, wise in their own intuition, hold the newborn child in their arms or on their laps a great deal, rocking him gently to-and-fro with rhythmic regularity, often to the accompaniment of a soft monotonous song. They are, of course, unaware of the fact that this procedure serves an important biological purpose, but they sense intuitively that it results in the well-being of the baby. The few mammies of the old school who are left look with great contempt upon the stationary furniture of the modern nursery. The weak point in their method lies in the fact that they make no provision for periods of free activity on the part of the child. Also they do not recognize the progressive stages of muscular development by which the baby gradually provides his own exercise, so that rocking becomes unnecessary. The continuance of these comfortable nursing activities beyond the appropriate time fosters passivity and dependence in the child rather than the beginnings of self-dependence, which all good nurses and mothers must have constantly in mind.

The third type of feeling well developed in the newborn baby is sensitivity to sound. The primal fear of sudden, loud noises has been noted by all observers of infants. The child reacts much as he does to an insecure body position, that is, with a startle.

One way of dealing with the child's introduction to sound survives in his toys—the squealing rubber devices, rattles, and bells, which amuse him after the third or fourth month—all play an important part in assisting him to adjust to varying degrees of noise. However, it is the early stimulation of the human voice,

preferably the mother's, which enters most deeply into personality building and brings the deep reassurance every baby needs.

Sensitivity to light does not require much attention. From birth the baby readily adjusts himself, for the pupil of the eye reacts to light immediately after birth and after the first few days of life there is very little danger that the infant may get too much light stimulus unless he is placed directly facing the sun. Babies in a darkened nursery are frequently seen gazing at the window, lamps, or light colored walls, as if the stimulus were highly agreeable to them. When they have had enough, they close their eyes. Staring is a primary activity and should not be interfered with. The first true focusing of the eye for any length of time occurs in connection with feeding, when the infant fixes his eyes first on the breast and later on the face of the mother.

The feeling experiences which we now know are vitally important for developing the new mind were recognized by the older pediatricians, although they did not consider them as an instinctual need. A nurse who formerly worked for Dr. L. Emmet Holt related to the writer the following incident: She was on night duty in the infants' ward of a large city hospital when Dr. Holt came in to see a baby who appeared to be going into a state of inanition. No evidence of any kind of organic disease could be discovered, but for unavoidable reasons it had been necessary for the child to remain in a crowded infants' ward longer than was customary. The advice of Dr. Holt was, "If you wish this baby to live, take it in your lap while you write up your charts, and give it some mothering."

Perhaps the most convincing evidence of the importance of the rhythmical stimulation of tactile and muscle senses comes from the child who does not get, or who loses, appropriate maternal care. Under these circumstances the average child will develop various forms of automatic activity. Thumb sucking, the best known and most obvious of these so-called habits, is discussed at length in another chapter. Head rolling, head banging, and various other forms of hyperactivity, including masturba-

tion, frequently develop. In this way normal behavior activities become dissociated into troublesome habits.

An actual case will show the logical sequence. Baby Sally, who was breast fed and cared for only by her mother, developed well for the first four and a half months. At this time the mother was suddenly called away from home and the baby had to be weaned abruptly. The child was left in charge of an aunt who gave her the most conscientious care, exactly as it had been prescribed by a pediatrician. For fear that the infant would be handled too much, the aunt had been instructed not to pick her up; accordingly, she did not hold the baby for feedings or fondle her. During the first week of the mother's absence no noteworthy reaction was observed. The child did not cry and apparently slept very soundly at night. However, a marked pallor developed in spite of scrupulous hygienic attention to fresh air, sunlight, and diet. By the end of the second week, the aunt was horrified to discover that when going to sleep the child rolled her head violently, at times knocking it on the side of the crib. Not long after this, she began to bang her head with her fists, at times picking at her hair and actually pulling it out. This behavior continued off and on for a period of two months. Finally, in desperation, the aunt decided that a psychiatrist must see the child because she had the idea that some serious nervous disease had developed. In the meantime the mother had returned and it was not difficult to outline a course of treatment, which she carried out in an excellent and even exaggerated fashion, so that the child rapidly recovered, soon being restored to an entirely normal condition. Breast feedings were, of course, not resumed, but the excellent mothering enabled this infant to overcome the results of the combination of sudden weaning and loss of stimulus satisfaction.

The extraordinary story of the two children in India who were kidnaped and actually reared by a wolf tells of how the older child when brought back to civilization acted like a wild creature and showed no signs of responsiveness to kindness until

the missionary's wife, who was taking care of her, began to give her a regular daily massage. This was partly to correct the muscles of her hands and feet, distorted from traveling on all fours, and partly to find a method to give her some form of human contact. Almost immediately the child responded with signs of affection and not long after this treatment she learned to speak a few words and to adopt in some measure the ways of social life.*

Feeling, then, is as fundamental in the life of the young infant as is food. As with food, either starving or overfeeding is dangerous. The part of the mother in all these delicate processes through which the infant feels his way outward is to hold out a helping hand at the moment when it is needed. She is the child's first and most important teacher, who gives him the fundamentals of his education. It is mothering, wise, tender, and mature, growing out of her fulfillment as a woman, which alone can make this subtle contribution to the infant's welfare.

* Gesell, *Wolf Child and Human Child.*

V. SLEEP

THE YOUNG BABY is popularly thought to sleep twenty hours out of the twenty-four. The half-conscious dozing of the newborn, however, is not really sleep in its adult sense; it is more nearly a continuation of the prenatal state. The infant does not reach a stage of being actually awake except for brief periods until he is two to three months old. He is practically in a state of hibernation during the first two months of life. This stuporous condition is another indication that the brain is not yet functioning to any appreciable extent, and that its connection with the sense organs is incomplete. Certain inner developments are going on which utilize the energies of the small organism. The true sleep which we refer to when we say, "He sleeps like a baby," is not seen until the child has given evidences that he is awake over long periods; that is, that mental activity has begun to develop (such evidences are the smile of recognition; the head turned in response to sound; and the first reaching and grasping for something observed).

It appears, then, that true sleep is a rhythmical relaxation which follows the beginning of higher brain activity. It is a biological rest reaction, like the diastole of the heart, like the pause which follows breathing, and the various other rest periods which follow the normal function of any organ of the body. We see it first developing after the excitement of hunger and satisfactory sucking experience. Sleep follows a period of stimulation and excitement. It is the rest made necessary by that mental seeking and grasping activity which we call conscious attention.

Deep, prolonged sleep, it is generally agreed, does not appear until after approximately the third or fourth month of life. The two main reasons for the long period of semiconsciousness are lack of development of the brain cells and their connecting nerve fibers and insufficient oxygen in the brain circulation to maintain it in active function.

Certain obvious body characteristics distinguish this early semiconsciousness from true sleep. The eyes are closed, but on careful inspection the eyeballs are frequently seen moving back and forth. The usual posture, if the infant is not tucked in too tightly, is similar to the prenatal position with the knees slightly drawn up and the head bent down over the chest, the arms usually flexed, and the hands closed. There is seldom complete relaxation except immediately after sucking. Periodic random movements are quite frequent.

Another posture which is infrequently seen but does occur in babies who are thought to be normal is that of hyperextension of the entire body, particularly of the neck and head. Nurses sometimes complain that it is impossible to dress or drape a young baby because the muscles are so tense. This posture in older children is associated with conditions in which there is poor circulation in the brain. In infants it is often accompanied by paleness of the skin and coolness of the hands and feet.

In true sleep the eyes are closed and the muscles of the eyeballs are relaxed so that movement is seldom seen. The body muscles are soft and flexible. The skin is usually rosy, moist, and warm. The posture is entirely plastic and adaptable. Perhaps the most outstanding factor is that breathing is now deep and regular, instead of shallow and irregular as it is in the first weeks.

The mother has to establish a balance between appropriate stimulation and rest in order that the baby may develop a healthy sleeping routine. The adult is usually able to control any tensions due to too little or too much stimulation, so that in a state of health he can adjust his sleeping time to his own convenience without great difficulty. But most young infants have to be given appropriate rhythmical stimulation in order to sleep well; that is, their stimulus hunger has to be appeased and their avenues of sensory intake have to be brought into a state of adjustment. The only way a baby can put himself to sleep is by sucking. If he has to resort to this activity constantly in early life, it easily turns into a formula which he finds necessary, and sucking becomes a fixed habit. It is far better for the baby if the mother

supplies this very much needed stimulus by gently rocking the child or softly singing. This also helps to improve his sense of equilibrium, and to allay, in a way that is gently agreeable, the infant's innate fear of falling.

We have spoken in the previous chapter of the cradle and its value in the first months of life. Along with its rhythmic swing the lullaby holds a time-honored place as a means of helping the infant to establish his sleeping function. The great composers, who, like all geniuses, have a deep understanding of man's nature and needs, have written lullabies that have brought sleep to countless babies. There is a profound reason for this because of the child's extreme sensitivity to sound. It has been established that even before birth the foetus responds to music. It seems that singing to the young infant soft, simple, rhythmical songs brings a sense of relief and security to his sensitive nervous system and feeds his stimulus hunger. There is, as it were, a need to "convince" the child that sound is a good thing when presented pleasingly. Without this gentle introduction to sound, many babies continue for an unduly long period to react with a startle to sudden and loud noises. This rhythmic pleasure stimulus also helps to avoid the development of thumb sucking.

What about the infant who has been overstimulated by too much mothering, and what effect has this on sleep? This is a vital matter, for if the rapidly developing sensorium—that is, the part of the forebrain which receives incoming sensory impressions—is overtaxed, one of two serious complications may follow. Either the child may develop a tendency to convulsions, or else he may go into a stuporous or shock state, which we describe in a later chapter.

It is all important, then, that these stimulus methods must always be intelligently employed. First, it must be stressed that their continuation after the child has fallen asleep is disturbing rather than soothing. More complicated is the necessary recognition on the mother's part that the child is a developing individual whose needs are constantly changing. As his sensory functions come into use and become stabilized, he begins to satisfy his own

hunger for stimulation, and he needs less rocking and singing.

It must also be remembered that the purpose of rocking and singing is to help the child become accustomed to the feeling of self and to the use of his own normal body functions, not to fix his attention on them as a means of pleasure getting. They counteract certain vague innate fears of the infant and reassure him about sensory stimuli with which he is unfamiliar, but they are not ends in themselves.

Baby Rob is an example of a child who showed this need for rocking or some form of rhythmical stimulation to induce sleep. This child was ten months old when he was referred to our study group because of what his mother called "a peculiar rolling habit." He had apparently been a very good sleeper from the time of birth, but the mother had discovered, on coming home late one night, that the infant was rocking violently back and forth in the bed with his arms tightly clasped around the end of the blanket. Observation showed that this was a regular occurrence. She was greatly disturbed and immediately jumped to the conclusion that the baby had somehow been injured and that, as she put it, "there was something mentally wrong with the child." In giving information about the general development and routine care of this infant, she repeatedly emphasized the fact that she had never played with him, that he had never been rocked or jiggled and had always been left alone in his own bed in the nursery to go to sleep by himself. The nursery, she insisted, was "perfectly quiet and entirely isolated from the rest of the house."

When the suggestion was made to this mother that it would be good for her to spend a few minutes holding and playing with the child at regular intervals before his feedings during the day, and particularly in the late afternoon, she was plainly horrified and explained that she had taken special care "not even to let the child's father see him late in the afternoon when he came home from business lest the baby become too excited." She was, however, willing to try the experiment of rocking the child to sleep at night, in order to test the result. She also agreed to place

a dim night light in the nursery, so that if the child were restless he need not waken in a totally dark room.

The rolling habit, of course, did not immediately disappear under this treatment, but there was enough improvement in the general reactions of the child within a week to convince the mother that she should continue the procedure. With the dawning understanding of what was wrong with her baby, this mother, who was not only intelligent but loving, worked out an ingenious scheme for supplying the appropriate stimulation which was so greatly needed. At the end of his first year she reported that the rolling habit had entirely disappeared.

The words of some of the best-known lullabies give us insight into their biological and psychological implications. The familiar "Rockaby, baby, on the tree top" is a good illustration. Here the association of rocking and the fear of falling are clearly brought out. The well-known Brahms's lullaby refers to the odor stimulus of roses, the softness of the cover, and, in contrast, the scratching of the thorns or the fingernails. We have here again the stimulus factor where too much softness or too much scratchiness are both to be avoided. It presents on the one hand the picture of roses and on the other the pain stimulus of the thorns and the sharp fingernails with which the small baby, very characteristically, scratches the skin of the face.

Another example of an intuitive approach to the meaning of a child's sleep is the first prayer which children are frequently taught to say when they are put to bed:

Now I lay me down to sleep,
I pray the Lord my soul to keep;
If I should die before I wake,
I pray the Lord my soul to take.

The biological principle in this age-old prayer is a very important one. The activity of the brain which is awake and functioning is highly protective, in that it furnishes nervous energy for maintaining the life activity of the organism. The temporary

setting aside of consciousness during sleep causes a certain amount of apprehension in children who are not mothered, and in whom stimulus hunger has never been recognized and appeased. An older child, for example, who is not getting enough mothering, invariably becomes apprehensive when he is put to bed. Staying awake unconsciously becomes to him a means of keeping watch against some vague danger. Many lullabies and prayers contain an assurance that the mother or the angels or some divine being is near at hand to protect the life of the child, supposedly against external dangers. The real danger facing the unloved child, of course, comes from the instability of his nervous system and the uneasiness that arises as a result of the imbalance of his body activities.

An illustration from the history of one of the children closely observed in our research will show a different angle of the sleep problem. Here this function became exaggerated as the child's means of escape from discomfort and frustration. From the beginning of life Baby Pat had difficulty in sucking. This was due to the fact that her mother, a successful actress, was averse to breast feeding. She weaned the child suddenly at the age of four weeks, and the infant was placed on infrequent bottle feedings. The actual food supply was entirely adequate, in so far as bulk and caloric intake were concerned, but the sucking time was too short and the infant had practically no mothering. The bottle was propped on a pillow and the baby was not even held for feeding. Her response to this double frustration was the development of a tendency to sleep the greater part of the time. There was actually a slowing up of all sensory reaction, with a pronounced diminution in reflex excitability and a consequent depression of all body function. This child became extremely pale and lethargic, and at the age of six months was retarded in many aspects of her development. Apparently the thing which disturbed her most was to be awakened, in response to which she would get into a panic of screaming and restlessness. For example, if she were drinking milk from the bottle and the nipple became

stopped up or the flow of milk lessened because of the vacuum created in the bottle, she would immediately doze off without any protest reaction and the bottle usually slipped to the floor with a crash. The child would then wake up and scream for half an hour without interruption. The usual means of soothing had no effect on her.

The only sure means of gratification for this infant was sleep, which was not actually sleep, but really an automatic withdrawal. This economy of function enabled her to maintain life by a sort of hibernation, and the interruption of this protective mechanism filled her with uncontrollable anxiety.

For a few months, contact with this child was lost because the mother felt that the advice given her was impractical since it interfered with her professional duties. At the age of eleven months the child was brought to the clinic by her father, who had become alarmed over her condition and realized that the baby's health was seriously threatened. When he brought her for advice, he related the following incident: the previous evening he had been reading in the room where the child was asleep and had climbed up on a stepladder to take down an encyclopedia from a high shelf. Accidentally he had let several volumes fall to the floor close to the infant's bed. Highly alarmed at the idea that she might have been struck, he hastened to pick her up but found the baby so deeply asleep that she gave not the slightest reaction. (This child automatically utilized sleep as a flight or withdrawal mechanism and apparently went into a state of stupor in avoidance of frustration.) When the father later related this incident to the mother, she assured him that this was deep and restful sleep which was normal for a baby. She was not aware of the pathological nature of the stupor and did not connect it with the general condition of the child.

It was several months before the sensitivity of this infant was restored and her stimulus-response mechanisms readjusted to healthy functional activity. This was brought about actually by the fortunate engagement of the services of an extremely motherly

nurse, to whom the condition was explained. She recognized that this baby needed love and reassurance in order to regain her functional balance.

To sum up, sleep is the natural counterpart of conscious mental activity and, particularly in the early weeks, has to be regulated in close connection with the other instinctual needs. As we have already seen, the mechanisms through which the mind is to work and relax are being developed in the beginning of life and need careful direction.

The best practical plan for an infant's sleeping arrangements we found, after many observations, to be the following: In the first month in a cradle or carriage at his mother's side; after this time it is the right of every human child to have a room of his own for sleeping, preferably adjoining that of the parent's. Until he is of school age his psychological growth requires this. The time for sleeping should be as invariable as possible and never less than sixteen hours a day in the first two years.

The vigorous arm waving, kicking, squirming, and head turning of the newborn child thus aid materially in mobilizing food and oxygen supplies in the tissues and driving them into the expanding capillaries of the lungs and brain. It is well known that when the movements of the baby are restricted—for example, by bandaging the arms to prevent finger sucking—a panic of hyperactivity as violent as if breathing had actually been interfered with is the immediate result. The same sort of panic reaction takes place in most babies if the head is firmly held so that its almost constant turning movements are checked. Interference with any of their spontaneous movements will make the majority of healthy infants cry violently. It is evident that free play of the muscles is necessary for the health and well-being of the child. Where the old custom of swaddling is still practiced, it is an established fact that the infant must be wrapped up shortly after birth or he will resist this in such a way as to make it impossible.

"I wonder what he is thinking." Almost every mother, perhaps from time immemorial, has said this in some instance or other while looking fondly at the little baby in her arms. Yet all the evidence available would seem to lead to the conclusion that the child does not think at all during the first two or three months of his existence. It appears to be characteristic of the infant, paradoxically, that he must do a great deal of acting before he can think. The maxim to think before you act is reversed in infant behavior, which may be why we have to learn it with difficulty later. The child's first behavior is directed from within his body by instinct. It has to do with the primary hungers; it is also determined in the beginning by the pleasure-pain principle.

The first weeks of the infant's life represent an important period for developing a good circulation. During this time some of the blood vessels which functioned before birth become obliterated. The heart muscle itself develops rapidly and pumps blood in new directions. We have to remember that in the first weeks of life, it is not constructed as it is in adulthood. From its

size, shape, and position before birth, we may draw the conclusion that its first function was that of a suction action which tended to draw the elements needed from the placenta and from the infant's liver, where they were temporarily stored, into its capacious stomach-like cavity. From here the blood was gradually extruded toward the chest and head, but the growing heart itself had first claim on the supplies for the body.

For this reason the muscles just after birth must help the blood to circulate. Even in later life our muscles keep something of that function, for, as the eminent physiologist Dr. Walter B. Cannon has repeatedly emphasized, "The laboring muscles act as if they were outlying hearts receiving more blood when they work, and pumping that blood back to the central heart and to the lungs for refreshment and a new service." *

The chief goal of the baby's first behavior, then, is self-development at its simplest level. Rhythmical repetition of basic body activities must necessarily go on until higher levels of the brain begin to mature. And until this maturation takes place, the mother must act as the child's brain; that is, by a judicious use of her loving attention she must stimulate within the infant the activities which he cannot set in motion for himself. He is unable to adapt to changes until the forebrain has completed the primary stages of its organization.

The mother who appreciates how complicated is the process of learning to live will not attempt the futile task of trying to implant in her infant's mind in the first months of life ideas that belong to a far higher level of development. She will be thankful that he has the right primitive instincts and she will help them along. Even in the minds of highly intelligent people, a good deal of confusion exists about this deep instinctual drive within the human organism to develop itself. The life instinct, known later as the instinct for self-preservation, is a natural force which is constantly at work. In the early phases of life, behavior is predominantly instinctual and has very little to do with adjustment to the particular culture in which the child is born. When

* Cannon, *The Wisdom of the Body*, p. 163.

we attempt to apply moral and social concepts of selfishness, we show complete misunderstanding of human nature in its beginnings. It is to be hoped that the baby is selfish, and that his selfish needs will be met. Babies who do not have full instinctual gratification in this early period tend to develop a self which is weak; whereas, through full satisfaction of their primal hungers and through full and free use of the muscles and senses which aid them to take part in this satisfaction, they tend to become self-secure and to gain self-control.

An actual incident will show how far astray the best intention may lead the adult who does not understand a child's needs.

A young mother, a woman of superior intelligence and fine character, was deeply engrossed in conversation with the writer about the development of her small son, age two months. The time came for the infant to be taken up and he began to squirm and wail vigorously. Questioned as to why she did not attend to the baby, she replied in all seriousness: "I have begun to teach my son not to be selfish. He must learn to wait when something important is going on." This loving and conscientious mother failed to realize that the tension of waiting is for a young baby an actual threat to the stability of his entire organism. Learning to wait can be accomplished only when the brain has reached a considerable state of maturity. What this mother desired of her young son of two months might be a possibility at two years but not earlier. It is a difficult matter to make clear to parents —that comfort and satisfaction do not involve self-indulgence for the infant but, rather, the very existence of self. The baby's need must be gratified somehow. The sequel to the above story is significant. This particular baby soon began to find solace and to relieve tension by sucking the end of his blanket. He developed various difficulties due to the irritation of wool fibers in his nose, mouth, and intestinal tract, and also—still more serious—a fixation of the sucking habit. This began to dominate his behavior, causing a marked retardation in his development, and became the source of untold worry to his mother, bringing continual conflict between her and the child. Thus we see that

this mother's well-intentioned discipline led not to the establishment of a more social type of behavior but to the prolonged use of a more primitive type of activity.

Unfortunately the idea is still disturbing to many people that mental life is so closely linked up with and so firmly rooted in other forms of primitive biological activity, such as sucking, breathing, and eliminating. These links between what is biological and what is psychological have never been made sufficiently clear. The inner needs and tensions due to the growth of the brain in infancy are poorly understood, and the beginnings of the emotional reactions and of the thinking process have never been sufficiently studied. Yet just these bio-psychological connections are highly important because the development of vital personality in the adult depends essentially on the way the premental hungers of the baby are satisfied and on the help he gets in bringing his own behavior mechanisms into action so that he can later satisfy his emotional needs and further his own intellectual curiosity, or desire to know.

All the early drives of the infant are normally focused around her, the mother, and he turns to her with a need that should never be disregarded. In some strange way an adequate answer to this seeking force brings out in him the reaction of recognition and love, and these are forces as strong ultimately as the hunger that brought them to life.

VII. SOME FACTS ABOUT ELIMINATION

So FAR we have been pointing out in every chapter the importance of giving a baby some help in his adjustment to the complicated process of living. About elimination the opposite advice is needed, for good elimination is a function which from the beginning of life is harmed instead of encouraged by outside prompting. Whether we like it or not we must give nature plenty of time to complete development of the nervous mechanisms which control bowel and bladder function, or else we damage certain primary feelings of self-regulation and control which develop in close association with the growth and organization of these functions.

In recent years we have learned a number of new things about the toilet training of young children. We know that in dealing with children in their first year of life our fastidiousness has to be temporarily set aside and we have to study nature as it functions in the raw. The general tendency has been for mothers and nurses to feel excessive responsibility for the child's elimination, often neglecting his other personal needs in the feverish attempt to "establish cleanliness." In regularizing this particular function it is necessary to let nature do the prompting until the time when a child can sit and stand alone and has command of a few words or signs by which he can make known his inner needs. A bird's-eye view of the development of a large number of children from birth up to four or five years considered and compared with a number of studies of adults who have broken down nervously or who have become neurotic has shown psychologists that the character and personality of an adult are influenced deeply by the way in which his eating and eliminating functions were handled in his first year of life. Depending upon the stage of development of the baby when toilet training is begun and

upon the sensitiveness of the individual child, the results in later life may be: a tremendous preoccupation with toilet functions, overcleanliness with compulsive ideas about bathing, or else its opposite, persistent untidiness and refusal to wash. The emotional attitude of a mother or nurse who trains the baby too early, too suddenly, or too rigidly, may bring about all sorts of nervous tensions in the child.

The great psychologist Sigmund Freud first pointed out the influence these primary functions and their control have on character formation. He found in the psychoanalytic study of many adults that the qualities of stubbornness, self-will, and stinginess may be traced back to difficulty in early training to cleanliness.

"Shall I forget about the whole problem of toilet training for a year and turn the house into a laundry?" asks a young mother who has come for advice about the training of her baby. There are very few problems which forgetting has really helped, and certainly this is not one of them. After the baby's first week of life it is time to begin to observe the natural rhythm of his bowel movements and his reaction to this function which even this early begins to cause him excitement. In breast-fed babies elimination like most other activities is self-regulating, and a rhythm becomes established early if the mother herself is emotionally stable. During the first weeks of life movements occur from three to five times a day, usually soon after nursing. The baby shows little reaction at this time of his life. In the second month a change comes about, and movements are fewer and firmer. The child shows some kind of excitement just before the movement takes place. He may squirm as if he were about to cry, or he may become tense in his limbs which he either stiffens out or draws up tightly. Breathing changes are noticeable with either a very rapid respiration or a tendency to hold the breath. Babies of three to six months often fix the eyes on the mother with an expression of deep attention. As one mother said, "I thought my baby was beginning to know me because he looked at me so hard and seemed about to smile." Then she continued

VII. SOME FACTS ABOUT ELIMINATION

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with great disgust, "He was only getting ready to move his bowels." Babies sense very early that in these functions something of a very personal nature is happening which brings them a feeling of well-being and relieves disagreeable tension. This activity must not be interfered with. The first year of life is a predominantly biological rather than cultural period, in which the nervous system is getting its most rapid growth, and hence the child cannot be called upon to adjust himself to outer conventionalities which may be easily learned after the inner nervous organization is stabilized.

In recent years a new theory with regard to toilet training has arisen. It advocates that as early as in the fourth or fifth week of life the mother should hold the baby over a small potty in her lap once or twice a day, thus trying to induce a bowel movement. Often nurses introduce a soap suppository or even the little finger in order to "get the idea across." This procedure works with apparent success with many infants, and a three-months-old baby may be "trained" not to soil diapers. This relieves the laundry problem and gives the mother an inordinate sense of pride in her own accomplishment and in the "cleanly instincts" of the baby.

There are, however, other angles to be considered in such a procedure. In following the development in a large number of babies trained so early, it was found that with any slight change of routine or with illness the training broke down, and reëstablishing it was an almost insuperable task calling forth all the resistances of the small child and often resulting in a long period of bed wetting. A still more serious angle to this early training procedure is the fact that it causes nervous tension in the child, often not recognized at once, but later showing itself in the habit of breath holding or of constipation. One reason why this happens is that the control of bowel and bladder functions lies partly in the diaphragm, the very important muscle which has a great deal to do with breathing and, in time, with speech.

The best plan for toilet training which we discovered from studying a great many children was to wait until approximately

the tenth month, when the child has begun to speak a few words and has the ability to make known definitely what is going on inside of him. After observation of each individual child to determine when his movements most regularly take place, he can be put on a small potty chair just before this time. The majority of babies respond at once, but some may require one or two months before they make the necessary association. The safest advice is to proceed slowly without emotional tension. Regularity is always a primary concern. Our studies show that difficulty occurred about constipation or about training to cleanliness only in cases where there was tenseness or an excessive demand for cleanliness on the part of the mother or nurse.

VIII. LIFE RHYTHMS AND ARTIFICIAL SCHEDULES

ONE OF THE MORE SUBTLE stories of ancient mythology is the tale of the giant who shaped people to fit the beds instead of supplying beds to fit people. This process of designing life around man, then preparing a mold to fit an average man and pouring all mankind into the mold, is still being rediscovered and practiced, for its motivation is often a love of organization rather than a desire for progress. Assorted shapes and sizes in temperament and personality seem to strike the businesslike person as untidy, and some reformers apparently dream of the day when we shall all think alike, feel alike, and look alike.

Many modern young mothers start out with a passion for standardization. It may be that they are hoping, very naturally and quite understandably, that once the baby gets going on a good schedule he will be as dependable as train service and give his mother a chance to have some life of her own. In any case the importance of routine in the life of the infant has always been recognized, and he himself shows by his good response to regularity that he has indeed an inner need for outward system.

There is, however, considerable misconception as to the relationship between inborn natural rhythms of behavior and the artificial schedule of activity which may be imposed suddenly upon the child by the authorities into whose hands he has been delivered. The average healthy baby is born with a fairly well-established natural rhythm of functional activity which is often only temporarily disturbed by the process of birth. Yet, in spite of our knowledge to the contrary, we act as though the child does not begin to function until the moment he is born, and we forget that he is endowed by Nature with activities which have been in operation for many weeks. Any arbitrary attempts to set up and maintain an artificial schedule on any basis other

than this spontaneous behavior, natural to the healthy baby, cannot but be damaging to his development.

Routine for the young infant is not, then, as it is with the adult, simply a matter of convenience. It is necessary for the proper exercise and balancing of a baby's body functions until the central nervous system is mature enough to take over. Actually, a child's routine might be called a primary learning process through which body activities by means of repetition become charged with functional energy. The mother, of course, is the loving teacher. In somewhat the same way that an adult learns to play the piano, or acquire any other accomplishment—by constant repetition—so the baby "learns" the behavior which builds his body and shapes his personality—through regular repetition. Perhaps never again in his life does he have such a long list of study subjects! When this first routine is interrupted, or when new experiences or even new foods are introduced before he is ready for them, his equilibrium and balance may be seriously disorganized. In the first weeks of life, it is necessary for the mother to give close attention to the routine which suits *her* baby, for no two babies are alike.

It is helpful to remember that the baby is doing his full share of the job of getting adjusted to the world. The extensive physiological changes going on within a baby at birth necessarily mean certain irregularities of behavior, and these cannot be regulated suddenly. The organization and coördination of vitally important functions must be prompted and directed by the mother, and after that the gradual establishment of a routine of general handling is not difficult, for as soon as these rhythms are well established and given full exercise and satisfaction, the baby's development proceeds for a time on its own momentum. The more fully the mother can give herself to these first postnatal adjustments of the baby, the more ready both will be for the next stage, that of beginning independence. She will have taken the first step toward making the infant a self-maintaining individual. Who knows what time and trouble she may thus have saved herself ultimately!

Certain types of irregular behavior, recognizable after studying large groups of newborn infants, must be understood before they can be corrected. For example, many infants immediately after birth are excessively stuporous. Formerly we thought that they had been injured mechanically at birth. These babies need much more supervision than the more alert ones. This stupor may mean that the oxygen economy of the brain has been deeply disturbed either before or during birth and that the metabolism in the brain is inadequate to maintain the breathing and other vital functions. This is not true sleep but a partial asphyxia. Extreme care must be taken in attempting to arouse these infants. They must be helped to breathe more adequately. This can be done best by stimulating them to suck, by tipping the head down in order to get more blood into the brain circulation, and by stroking the head and face. It is sometimes necessary to hold such an infant in the arms frequently in order to feel the tone of the muscles and watch the color of the skin, as well as the breathing movements.

In contrast to the stuporous type is the hyperactive infant who cries a great deal and gets too little rest. This child, as a rule, is also having difficulty with his oxygen supply, but his reflexes are somewhat better developed than are those of the stuporous child. His diaphragm as well as his general body muscles act to protect him and keep in circulation what oxygen he has. The prolonged crying which often accompanies his restlessness is commonly a spasmlike action of the diaphragm. The frantic body movements aid in dilating the capillaries of the lungs and in forcing more blood into the brain. These babies are often quieted simply by lowering the head and initiating sucking activity. It appears that the tension of the mouth and general body muscles alternates, and that shifting from the one to the other activity is invaluable. Attempts made to restrain the constant movements of the child or to stop his crying by other means are unphysiological and usually make the condition worse.

Another type of unbalanced behavior is seen in the baby who sucks to excess. Some infants are born sucking the thumb or

some of the fingers, and, occasionally, swollen and macerated thumbs of the newborn give evidence of finger sucking before birth. This early sucking does not necessarily mean that the child is hungry for food, but that he needs this first mouth stimulation which assists him to breathe, increases the amount of blood sent to his brain, and relieves tension. Whether or not food hunger is present must be determined by observation and by accurate calculation of weight, food requirements, and actual food intake after the infant has been fed several times. Babies who suck vigorously in the first days of life are, as a rule, developing psychically at a rapid rate and are peculiarly sensitive. They can be helped by diverting a part of this tension from the mouth zone to the skin by means of oil rubs, frequent bathing, and gentle massage. Unusual care must be given to their rest periods. Sudden loud noises should be avoided.

Any well-considered schedule must, then, of necessity take into account the balance of all the infant's native activities, and the life routine must be carefully and gradually worked out with this in mind. To summarize: If the newborn infant sucks his thumb too much, this is the expression of oral tension, and the child's craving must be respected and attempts be made to gratify it appropriately. If he cries excessively, he is overdoing a primitive form of breathing activity to protect himself from oxygen want. If he is too stuporous, some of his rapidly developing brain tissues may suffer from not being oxygenated, and there is also the danger that he may go into a state of inanition or slip back into ways in which he used to function before birth. Unless he gets help, the infant must necessarily use any mechanisms at his disposal. Their continued use often means habit formation and subsequent behavior problems, for even in this early period of life habits are formed rapidly and insidiously, and their prevention is distinctly easier than their cure.

The effect of interrupting the first routine is often seen when an infant is taken home from the maternity hospital. Several days of restlessness follow. Frequently physiological upsets occur, such as food regurgitation or loose stools, and still more frequently

there is exaggerated crying or other disturbance of breathing. The inexperienced mother cannot see that any actual change of routine has occurred because she follows conscientiously in general outline the methods for the care of the child which had been instituted in the hospital and in which she has been instructed. However, the extreme sensitivity of the infant to such factors as changes in temperature, light, or sound, handling by strange persons, slight differences in ventilation or in hardness or softness of the bed, is not usually appreciated. It is difficult for an adult to realize how extremely distressing it is to the young infant to have to become adjusted to the new world. One is reminded of seedlings that wilt on transplanting and must be specially tended and protected. We find, for example, that when a baby is placed in a room where sudden loud noises occur, such as from a street car passing at frequent intervals, a doorbell ringing, or a sudden clatter of dishes, he reacts sharply to the sudden stimulation. On the other hand, our study showed that when infants were taken home from a hospital nursery where there was more or less bustle of human sounds and where lights went on and off, they gave an equally strong reaction to the stillness of an entirely quiet room. As we have said, the stimulation given a small baby has to be as carefully regulated as his food intake, if the child is to be nervously stable.

An elderly grandmother of one of the infants in our study told the writer the following story, which illustrates well what may happen when a radical interruption comes into an infant's regulated routine, particularly when separation from the mother has occurred. The father of the seven-weeks-old grandson was killed in an accident. As the grandmother explained it, the "infant somehow knew" and almost immediately began to wail violently, keeping up this distressed crying fairly constantly for several days. When the suggestion was made that some alteration in the child's routine was responsible for the disturbance, she insisted that the child had been unusually well cared for. A trained nurse had been engaged to relieve the mother during this period and to make sure that the infant had the usual attention.

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attempting to give this infant a bottle, but without success. Eventually, the child went into a stuporous state and seemed to be sleeping most of the time. A pediatrician was called in consultation and after the most careful examination could find nothing wrong with the infant. The "hunger strike" persisted, however, and food was finally introduced artificially through a stomach tube. In desperation, the mother telegraphed the old nurse that she must come back to save the baby's life. Fortunately, the nurse was able to return and within a few days the old routine was restored.

Following this episode, the nurse was closely questioned as to her handling of the child. The parents found that she had given the infant the additional gratification of being held in her arms, fondled, or sung to while taking his bottle, so that the satisfaction of her presence had assumed exaggerated prominence. The sight and sound stimulus of the familiar nurse connected with the feeding was necessary for the function to go on smoothly. It is interesting that this child, whose history has been followed carefully for nearly four years, reacts to any privation or disappointment by refusing to eat. Displays of temper or other emotional outbursts are rarely seen in him, and he is in other respects a passive and docile child. An outstanding feature in his development has been a persistent refusal to chew solid foods. He was beginning to teethe at the time when he was first deprived of his nurse and an association was built up, or in the terms of the school of Pavlov, the child was conditioned against chewing. Such a sudden early change of nurses is an extremely serious matter against which definite precautions must be taken. The result in the developing mental life of the child is much more serious than a complete change in food. In fact in cases where the mother or the familiar nurse remains with the child and gives him consistent care, the food can be changed with less serious result.

In planning the life routine of the baby from birth to the speech period, perhaps the most important factor to be considered is the element of continuity. Sudden changes, as we have seen, exert an extremely disorganizing influence on nervous inte-

gration. This is particularly true in the first three months of life but continues to be of significance until after the speech period has begun. When the baby has reached this stage, disorganization does not come about so readily.

Such a drastic change as sudden weaning in the first three months of life inevitably brings about serious consequences. New activities, new foods, or new persons can be tolerated only when the mother or nurse is a constant and unchanging factor. Mothers who are engaged in business or in the arts often have a feeling that they would like to give the baby the benefit of breast feeding for two or three months before returning to their outside occupation. This idea on the part of a mother implies that she thinks only of the nutritional aspect of the feeding and not of the contact experience and the developing of a relationship. If a mother must return to work a few months after the birth of the child, it is a better plan to start the infant with artificial feeding which can be continued without change while the child is on a predominantly milk diet.

Another important consideration is: Who shall have the chief care of the child during this prespeech period? When an outside nurse is employed, it is vitally important to engage one who will agree to remain through at least this period.

The amount of attention, with its resulting stimulation, which the child is to receive from various members of the family has to be considered and regulated. After the third month a short social period can be arranged safely, morning and afternoon, but always at regular intervals, when members of the immediate family who are experienced can hold the child or take over some part of the care. However, irregular visiting and the picking-up of a small infant is more disturbing to the child than giving him a new type of food, and under no circumstances should it be allowed. One mother is enough—provided she really mothers.

A tentative suggestion follows for the day routine of a baby of from one to four months. This is in no sense applicable to all babies and would have to be modified to suit the needs of an individual child. It is also to be clearly understood that the

schedule which follows is not concerned with the food hunger of infants, which in modern practice is usually met adequately enough, but with the problem of meeting an infant's equally deep hunger for stimulation. It is simply a schematic arrangement which brings into perspective the rhythmical needs of the infant. Please remember always that *time* for the young baby is the rhythm of his inner needs.

THREE-HOUR BEHAVIOR INTERVAL

(1) *When the baby spontaneously wakes* (6–6:30 A.M.)

Take up from bed, hold in lap for a few minutes, and rock gently, while stroking the head (Personal need)

Sucking period, 20–30 minutes. Food hunger predominates at this time (Sucking need)

Diapering: The average baby has a bowel movement about one-half hour after this first morning activity (Elimination)

7–8:30—quiet in bed (Sleep)

(2) *When the baby becomes restless* (8:30–9 A.M.)

Complete bath with fresh clothing. Allow 5 to 10 minutes of completely free random movement without clothing before bath, in a very warm room

Sucking period, 20 minutes

Fresh diaper

9:30–11:30—quiet in bed. This is the ideal time to observe the regularity and depth of the child's breathing. The pink color during sleep and the relaxation of muscle tone indicate that the baby is getting enough stimulation and is breathing adequately

Allow the baby to rouse spontaneously and cry for several minutes before the next period of mothering activity. This is a good breathing exercise. But here a word of caution is necessary. The mother must distinguish between crying which is done as a breathing exercise and crying which denotes a need on the part of the infant for his accustomed mothering. In general, we might say that a child should not be left to cry but, upon crying, should receive the judicious mothering activities which his needs demand

(3) *Noon time* (12 M.–1 P.M.)

Take up and hold baby in lap, gently stroking head

Sucking ad lib (30 minutes is average)

Fresh diaper

1–3—quiet in bed. Ideal time for sun bath and fresh (not cold) air

(4) *Afternoon rousing-up period* (3–3:30 P.M.)
Take up and move about or hold in lap, 15 minutes
Sucking period, 20–30 minutes
Fresh diaper. Bowel movement often takes place at this time
4–5:30—quiet in bed

(5) *Evening* (5:30 P.M. This period later becomes visiting hour.)
Take up and hold in lap. Gentle moving about or rocking. Full bath or sponging. Dress for the night
Sucking, 20–30 minutes
Fresh diaper
Rock and sing to sleep (Emphasis on stimulus intake)
7–10—quiet in bed

(6) *Take up for feeding* (10 P.M. or when baby awakens spontaneously)
Sucking, ad lib. Gentle stroking of head
Fresh diaper
Quiet in bed until spontaneous restlessness or crying occurs, usually 2 or 3 A.M.

(7) *Night feeding* (2–3 A.M.)
Usually during the fourth month the baby, after his 10 P.M. feeding, begins to sleep through the night

Note: For the child's best welfare, diapering should be done after the feeding period, for this on the average is the usual time for elimination to take place. Because of the individual differences in babies, it is unwise during the first months of a child's life to be rigid in regard to standardizing schedules. As has been emphasized, importance must be laid on the study of the spontaneous activity of the individual baby; on observing his times of awakening; on the intervals at which restlessness tends to occur; on sucking needs; on stimulus needs; on the average time of day when bowel movements tend to occur; and on frequency of urination. On the basis of these observations a schedule may gradually be laid down.

FOUR-HOUR BEHAVIOR INTERVAL

Routine at Four Months

Evidences of mental activity are now clearly seen. Vocalizing and teething become prominent at this time

(1) *When the baby spontaneously wakes* (6–6:30 A.M.)

Take up from bed, hold in lap for a few minutes, and rock gently while stroking the head

Sucking period, 20–30 minutes. Food hunger predominates at this time

Diapering: The average baby has a bowel movement after this first morning activity

7–9. Well-integrated baby lies quietly and plays with fingers or rubber toy, vocalizes, or sleeps again

(2) *Bath period. When the baby becomes restless* (9–10 A.M.)

Free exercise without clothing, 10 minutes. Complete bath and fresh clothing

Sucking period, 20–30 minutes

Fresh diaper

10–1. Nap. Wait for spontaneous awakening. This is true sleep in which there should be complete muscle relaxation. (By this time the breathing rhythm should be well established so that no further close observation is necessary unless the child has been ill)

(3) *Lunch period* (1:30–2 P.M.) Take up from bed and hold in lap 20 minutes

2 o'clock. Sucking period. Following this, *time to initiate chewing activity.* Cracker or toast placed in the mouth for jaw exercise 5 to 10 minutes after sucking

2:45. Fresh diaper. Sleeping in fresh air, or sun bath out in carriage

(4) *Social period* (5:30 P.M.) Emphasis on stimulus hunger

Visiting hour, preferably for father

6 o'clock. Sucking, followed by singing and rocking to sleep

Fresh diaper

7–10. Sleep

(5) *Take up for feeding* (10 P.M.)

Take up and move about. Last meal

Fresh diaper

The average four-month baby will sleep from 11 to 6

Note: Only in so far as the mother or nurse is able to recognize and work with the natural activities of the infant will development proceed smoothly, both in the more strictly physiological processes of eating, breathing, and sleeping and in the beginning of mental functioning. To the casual observer, the spontaneous activities of the individual baby may seem to have little meaning, or may not seem to be best for the welfare of the developing child. They have, however,

a deep biological meaning, as we have seen, and must be respected for both the physical and the mental health of the child. The gradual direction of these activities into regular and more appropriate channels is the sum and substance of the business of early mothering. Observations of elimination in the next four months give a basis on which to build subsequent training to cleanliness. No attempts at training of bowel control can be made advantageously until after the child can sit steadily without support and until definite vocalizing has begun.

IX. BABIES MUST NOT BE THWARTED

"CHILD PRECIOUS above all!" prays the Mexican midwife after the baby's first bath. "Ometecuhtli and Omecihuatl have created you in the twelfth heaven, in order that you should be born into this world. Know, then, that this world is sorrowful, full of pain, troublesome and solitary; it is a vale of tears; and that you, when an adult, must eat your bread with pain and earn it by your hands." *

All too many modern parents seem to be motivated by the same philosophy, grimly training their babies to prepare for the worst, by curbing their natural impulses. As a matter of fact, Nature is quite aware of what she is about when she gives the child his instincts and desires, and any curbing of his natural ways at an early age may very well endanger the smooth functioning of delicate mechanisms that makes it possible for the human body to live and breathe and have its being. Thwarted in one direction, the infant will take other means to express himself and relieve tension, developing protective habits that distort normal growth, just as a plant that is kept from the light will adopt another way of getting what it is after, twisted and distorted though that way may be.

The so-called bad habits of infancy are usually nothing more than normal activities which have got out of balance, and so, through a bad habit, the baby is getting something vitally needed, but in an inappropriate way. Sometimes such habits are behavior borrowed from another level of development, but usually they are a means of protection against the thwarting of vital impulses.

The human infant in the first year of life should not have to meet frustration or privation, for these factors immediately cause exaggerated tension and stimulate latent defense activities. If

* Ploss, *Das Kind in Brauch und Sitte der Völker.*

the effects of such experiences are not skillfully counteracted, behavior disorders may result. For the baby, the pleasure principle must predominate, and what we can safely do is to bring balance into his functions and make them easy. Only after a considerable degree of maturity has been reached can we train an infant to adapt to what we as adults know as the reality principle.

The antithesis to the idea of making life pleasant to the baby is found in the theory of making him sturdy by toughening him, reducing the danger of colds by cold baths, by scanty clothing in cold weather, and by sleep in a cold bedroom. This is an obvious fallacy. These experiences, which may be stimulating to the adult, are damaging to an infant under one year of age. His metabolism is becoming stabilized to maintain body heat and at the same time to provide energy for growth and body function and, most important of all, for brain development. Such irregular and unnecessary experiences are a severe strain, using up a great deal of energy and requiring an adjustment of the circulation not easily made by the young infant. The environment of the infant should be adapted to his needs and not the other way around. Inner developmental processes are going on at such a tremendous rate in the beginning of life that even with no unusual demands the resources of the infant are taxed to the limit.

Of course, it is true that there is a subtle danger connected with the pleasure principle, in that it may become associated with one function at the expense of others. This is what is meant by the overcharge of functional energy mentioned above. The pleasure of sucking, for instance, may easily become all absorbing. But this difficulty can be forestalled by providing other experiences (of body exercise, of sound, or of rocking) which give a sense of well-being and relieve tension. The word "thwarted" is used regardless of whether or not the thwarting is intentional on the part of the mother; thwarting may consist merely in neglecting to bring any of the primary body functions into action. To the infant it is all the same, at this early age.

We have seen in previous chapters some of the difficulties arising when the impulse to suck is not strong at birth and the

mother neglects to help the infant by making the process easy. The child may not only tend to lose the ability to suck, but his entire motor system may lose its tone. He becomes stuporous and lethargic, his breathing highly irregular, and in time a marked pallor develops. This reaction, which in all probability is the basis of what has been called shock in infants, is sometimes mistaken for food hunger. It may rarely occur in an older baby when he is suddenly weaned, but the reaction is characteristic of the first three months. It shows dramatically the far reaching effects of neglect or interference with the baby's instinctual drives. The entire organism is drawn into the reaction.

Sometimes, instead of losing the sucking reflex, the child's mouth activity appears to become reversed; the reaction to his sucking difficulty is for the child to push the nipple out of his mouth vigorously with his tongue. Along with this unusual tongue action an exaggerated tone or tension develops in the body muscles, so that the small torso tends to arch backwards. It is interesting to note that premature babies fed artificially with a dropper very often show this reaction, but as soon as they are able to suck vigorously and frequently, rigidity begins to disappear. (This "extensor reaction" probably allows more spinal fluid and more blood to reach the brain.) Such a condition of tension must not be ignored. A similar rigid posture is seen in older children in pathological conditions such as meningitis, where there is pressure on the brain which deprives it of its blood supply.

The frustration reactions described in the preceding paragraphs apply mostly to infants of a sensitive type or to young or premature babies. The tendency of the more vigorous infant of three or four months is toward exaggerated sucking activity when he is not getting enough mouth stimulation. This often appears in the form of thumb sucking. Sometimes this habit develops when the infant takes food too fast and does not exercise his mouth sufficiently, or when he is fed concentrated food at infrequent intervals. Infants cannot wait for their feeding, and they cannot be deprived of this fundamental activity of sucking

or be unduly interrupted in its performance. Exaggerated sucking is usually a sign of stimulus hunger, indicating that the child needs more blood in his brain and uses sucking as a means of getting it there. As we have suggested, exaggerated sucking can often be corrected by giving the child more mothering before and after the feeding time.

The main thing to remember is that thwarting must be looked upon not as a cure for these activities but all too often as an exaggeration of them. It is therefore a harmful practice for nurses to remove the baby's hands from his mouth and to bind down his arms so as to make thumb sucking impossible.

The relationship between thwarting and habit formation is brought home in the history of the extreme case of Baby Joe. The mother of this child, a successful teacher in a private school, developed early in her pregnancy great apprehension that either she or the baby would die at the time of delivery. In addition to this, she had a great dread of having to handle a newborn baby and felt sure that she would let him fall. She did not plan to nurse the coming infant and made no preparations for him. His clothing and crib were purchased by her sister at the last minute. It is significant that the mother made quite a ritual of reading every book that she could find on the care of babies, picking out particularly those sections which advised against handling and spoiling the child. Her baby, immediately at the birth, showed an intense craving for stimulation. He sucked his thumb on the delivery table and had two or three fingers almost constantly in his mouth. He also sucked on his lower lip and at times even sucked his tongue. When placed at the breast for the first time, he was unable to grasp the nipple because the mother's breasts were small and undeveloped. He had to be taught to nurse through a nipple shield, which was a difficult procedure for him.

The mother was extremely uneasy and seemed entirely unable even to hold the child in a comfortable position where he might nurse adequately. Since he was thin and undernourished, he was given supplementary feedings from a bottle after each nursing. The child did not thrive during the two weeks' stay in the

hospital after delivery, failed to gain weight, and was extremely pale. But when he went home and the mother's sister, who had made all the preparations for his advent, took over his care, an immediate and dramatic change occurred. He responded so promptly to the soothing and comfortable care of this motherly woman that in a week's time he had put on weight and appeared to be a normal and contented infant. He continued, however, to suck his fingers.

Shortly after this the kindly aunt had to return home to her own children, and the baby's mother, as awkward as before, undertook the care of her child, feeling that she had now learned how to do this. This unfortunate woman had as a child had so little love given to her that it was impossible for her to understand the child's need for mothering. She tried to stop the finger sucking by binding the infant's arms to his sides with bandages. A few days later an emergency call to the hospital was made by the visiting nurse, who had discovered the child in a critical condition. When the nurse had attempted to give him his bottle feeding, he could not hold the nipple with his lips. He was extremely pale, and his respiration was so rapid and shallow that she feared pneumonia. Rushed to the hospital, he was found to have no symptom of lung infection, but to be in a state of shock. He responded very well to treatment and within twenty-four hours was taken home again. Complete body massage twice a day was prescribed, more frequent and dilute bottle feedings were given (every three hours instead of every four), and the mother was encouraged to hold the child on her lap before and after each feeding. In this way he obtained the needed mothering stimulation. The acute condition of shock, which proved to have resulted from sudden weaning from the breast and prohibition of finger sucking simultaneously with the loss of the motherly aunt, was soon relieved.

However, the mother again became the victim of her fears and could not handle the child. Baby Joe developed one form of disorganized behavior after another. At first there were attacks of coughing for which no cause could be found, and no pathological

process was to be detected in the breathing mechanism. Obstinate constipation followed, and at the age of two months another curious symptom appeared: he began to bleed from the navel. This baby was functioning again as he had before birth and it was thus evident that the prenatal type of circulation had never been entirely abandoned. When this bleeding occurred, the mother, who had gone back to her position as teacher, gave up those duties in order to concentrate once more on the care of her own child, who was actually in a very critical condition. The baby again improved rapidly for a number of weeks and, with a great deal of help from a visiting nurse, appeared to have recovered.

This child was studied carefully by the visiting nurse through the first three years of his life. According to the record she made, he reacted to any change in routine or to the absence of his mother with severe breathing symptoms resembling asthma, sometimes with an attack of croup, sometimes with periods of breath holding, frequently with prolonged spells of hiccoughs, and on several occasions with violent crying which made him blue in the face and momentarily unconscious. These symptoms were always definitely related to some inattention on the part of the mother. She invariably reacted by giving the child an extra amount of attention, and this usually restored functional equilibrium in a very short time.

Another case of striking functional disorganization following sucking difficulty, or thwarting, was that of Baby Sue. The first child of healthy, vigorous, middle-class parents, she was born without difficulty, was well nourished, and cried immediately at birth. On physical examination she was found to be in perfect condition. Two factors contributed to the sucking difficulty: the most obvious factor was that the mother had slightly retracted nipples; the more subtle element in the frustration of the infant lay in the emotional attitude of the mother to nursing. She did not want to nurse the child but planned to return to her job as cook in a restaurant. However, she was persuaded to change her mind and decided that her child should be breast fed.

The nurse in charge believed that such a vigorous infant needed

no assistance in drawing out the nipples and stimulating breast secretion, and so the nipple shield, which is customarily used in such cases in order to give the infant more of a hold, was omitted. When placed at the breast, the baby displayed vigorous mouthing activity. The head pushed forward and rotated itself in the so-called "seeking reflex." However it was impossible for her to make the necessary contact between the tongue and the hard palate, and the child was entirely unable to grasp the nipple between her lips. The mother, who having made her decision now felt that her maternal integrity depended on her nursing the child successfully, became highly excited and manipulated her breasts in an attempt to draw out the nipples. From this she had a severe inflammation which finally resulted in an abscess that precluded nursing.

Meanwhile, the baby, after a number of unsuccessful attempts, had stopped sucking and when placed at the breast became stuporous. If a rubber nipple were placed in her mouth, it was pushed out vigorously by the tongue. The head arched back stiffly, finally her entire body bent backward, and her breathing became extremely irregular. It looked as if she were vigorously resisting food. In this position she swallowed large amounts of air and her stomach became enormously distended. She had to be placed on bottle feedings with a freely flowing nipple because there was no sucking activity at all and the fluid simply drizzled down her throat. It took approximately one hour for the nurse to give her the three ounces of formula from the bottle.

This baby became an air swallower, which frequently caused her to regurgitate the food given with such difficulty. Her breathing was inadequate and the stiff posture, with a general tendency toward backward extension and rigidity, continued even during sleep.

Through the painstaking efforts of the mother over many days, a great deal of fondling, and much stimulation of the mouth with a nipple, the sucking reflex returned, and a certain degree of organization was again established in the child's functions. Sucking then became so exaggerated that it was almost continuous,

and frequently the baby pulled the bottle so far into her mouth that she would gag or choke.

Then, once again, the child was thwarted. To check the thumb sucking which had become a constant activity, the mother pinned the baby's sleeves to her clothing. The result was that the child again gradually became stuporous, breathed very irregularly, swallowed a great deal of air, and refused to take milk. When the milk was introduced by force, she immediately vomited. By the end of the second month, she was in such a poor state of nutrition that she had to be placed in an infants hospital, where the physicians in charge were convinced that she was suffering either from a brain injury or from a constriction of the opening between the stomach and the intestines known as pyloric stenosis. Careful study, however, showed that she had neither of these maladies.

The infant was fed on thickened cereals every two hours. This treatment proved highly successful, probably for one reason—because the baby had an excess of attention with this rather difficult feeding, and also because her mouth again had the stimulation it needed. Gradually the muscle tone of the stomach recovered, so that the air swallowed could be easily regurgitated without loss of food. On the advice of the physician, the baby was encouraged to suck as much as she would, and no vomiting followed. After two weeks of painstaking care, her functions became reorganized and she returned home in good condition.

This child reacted normally as long as her sucking was not in any way interrupted and as long as she received adequate mothering. A short absence from her mother, however, resulted again in complete disruption of her breathing and eating activities and put her in a state of extreme restlessness and anxiety.

This case was rather spectacular, but varying degrees of this same sort of difficulty are seen in any number of infants. Babies who are not immediately assisted in establishing this fundamental activity of sucking, and are thereby thwarted, immediately suffer a loss of mouth sensitivity. In addition to this, their breathing and gastrointestinal functions become disturbed.

Then it is not an easy matter to redirect these basic body functions to balanced activity.

It is clear, then, that these apparently trivial frustrations in fundamental activities have a far-reaching effect on the physiological and beginning psychological organization. The reaction of young babies to thwarting of early instinctual needs varies, of course, with the constitution of each individual. Some infants develop crying habits; others, exaggerated sucking; a few, as we have seen, go into states of inanition or shock or of hypertension.

The common belief of parents is that a young infant who is not getting something he needs vitally reacts immediately by crying, kicking, or other familiar forms of protest. This is usually true of babies past the third month of life who have not been ill and who have not suffered early privation or frustration, but this does not apply to infants in the first weeks of life. Particularly, those who are somewhat premature or who have definitely shown signs of asphyxia after birth react in a much more subtle and indirect way to thwarting, by withdrawing or becoming negative. Their functional activities in the first weeks are very diffuse. Their inner needs may be adjusted for some time by kicking, squirming, and crying, which tend to distribute the food and oxygen supplies stored in the body tissues. But the obvious danger of this feeding from inner reserves is that the supply may give out before mechanisms of intake become well enough developed for emergency requirements. In following the behavior of these children who suffered early oral frustration during the first years of life, it is found that if definite efforts are not made immediately to remedy the disturbance, serious consequences result, both in the subsequent reactions of the child toward food and in the emotional relationship toward the mother. Naturally, both types of reaction have a deep significance for mental or personality development. The adequate satisfaction of an infant's oral needs is therefore not only of moment in his immediate welfare but is also vital in his development of good personality and successful social relationships.

Crying habits develop in much the same way as sucking habits.

Crying of the infant in the first weeks of life is an exaggerated form of breathing. It becomes a habit when it no longer serves a necessary purpose. The infant should be helped to develop and get control of the mechanisms of respiration. He must have adequate stimulation to keep the breathing center in tone, in order that his breathing muscles may get the proper exercise.

Some other habits which frequently develop in older infants who are not mothered are a general body restlessness, or some other form of repetitive behavior. Masturbation frequently is a substitute for social response, easily becoming exaggerated. Additional insight into the development of all these habits can be gained from a visit to a large home for foundlings or to any institution where small children are grouped together over long periods without considerable individual care. But it must be remembered that these habits are not peculiar to institutions but often occur in homes where there is every comfort for the child, except emotional satisfaction which comes from mother love. One sees institutional children, ranging from six months to two years, in all sorts of odd postures. Many of them make automatic rhythmic movements, such as rolling the body, sticking one leg or arm through the crib and waving it persistently, rolling the head or knocking it on the crib, sometimes grimacing constantly. They also make odd sounds which are repetitive and mechanical. On the other hand, some of them are completely lethargic and lie limply in bed, their large eyes wandering around as if they were in search of something.

To find the meaning of this bizarre behavior has not been an easy task. Until its development had been observed from the beginning in a number of babies who previously had behaved normally, its origin remained unclear. The story of Baby Sally, referred to in another chapter, is especially enlightening. After having had an unusual amount of individual care and affection, this child was suddenly weaned at three months and put in the hands of a new and strange person when her mother was called away. She developed a habit of automatic head rolling and hair pulling, thus substituting a repetitive, mechanical activity for

the gratification formerly received in a natural way from the stimulus of maternal care. Evidently she was able to keep certain sensory and reflex functions going by what seemed to be odd and meaningless self-stimulation. This protective behavior gradually disappeared when her normal needs for mothering were again supplied.

Close study of a number of such cases of children who were abandoned, or from whom maternal love was withdrawn for some more subtle reason, shows definitely that each child deprived of personal care must get for himself a substitute stimulation. The way in which he gets it depends on two factors—his individual constitution, and the particular stage of development in which he happens to be when he suffers either early stimulus hunger or later emotional need. Autoerotic activity is found most consistently: some babies develop the habit of staring at lights or even at the sun; others, who are somewhat older and just beginning to vocalize, develop the habit of making rhythmic noises or humming; still older children, who are learning to talk, repeat words persistently and make rhymes. Invariably the child who is deprived of individual mothering shows disordered behavior, with a compensatory retardation in general alertness.

On the other hand, when the mother-child relationship is wholesome, normal behavior development proceeds so smoothly and is so well integrated that it is impossible to see the delicate interpersonal factors involved. It is from the strange behavior of unmothered children that we gain one of the best clues to the meaning of the early dependency relationship, as well as an understanding of what "habits" mean.

Human infants are endowed with particularly intense instinctual hungers, which may or may not be in evidence at birth. This fact calls for no apology. It does not class them with the humbler animals in whom instinctual behavior predominates throughout life but on the contrary is one of the most trustworthy evidences that the child has inherited a potentially good brain and nervous system which is hungry for those experiences that will bring about growth and completion.

X. EARLY EMOTIONAL DEVELOPMENT

THE RIGHTS of a baby to guidance in the evolution of his emotional life must receive predominant emphasis after the fourth month of life. He begins at this time to show, in addition to physical growth and health, the first specific emotional responses to his mother. His eyes focus for an appreciable time on her face and he smiles in response to her presence, his entire motor system gradually becoming tense with excitement and anticipation. If she disappears too suddenly, or if she is with him too little, he definitely cries for her. He has developed a sense of awareness of his mother as an entity or person, around whom all his life's experiences are centered. She has become more than a comforting touch, the stimulus to his breathing, and the source of his food; she is now the "open-sesame" for new feelings of well-being and satisfaction, or else of tension and disappointment.

This new emotional awareness of his mother is in the nature of a craving for her, but it is now definitely related to seeing and hearing as well as to being moved about and to actual physical contact. The rapid development of eyes and ears, the so-called "distance receptors," has begun and is becoming a pleasurable experience. The fourth month is a high point in early mental development. From this time on we must begin to emphasize the importance of mothering for the development of the social life.

The feelings of the baby center completely in himself. It is through the mother that an infant gets his first feelings of what human beings are like and he begins in turn to like or dislike them. Love and hate are selective impulses implanted by heredity, but the quantity of each emotion depends a great deal on primary experience. Careful nurture of positive emotion has a fundamental influence. The unloved child comes to feel that

his parents are thwarting creatures who are necessary but obnoxious. In time he will find that he has to adjust to them, but this adjustment will be accomplished without too much suppressed hatred, or with love overbalancing, if he is started right.

Babies from three to six months need, then, to see the mother and to hear her voice at frequent intervals. It is important also that the child take part in the separation which follows, usually by falling asleep. If the mother sits quietly beside the crib or play pen, or goes back and forth through the child's room, it provides a sense of security at this critical period.

With the growing awareness of himself which comes from moving his own body about, reaching, grasping, and sitting up, the baby can tolerate brief periods of being alone. He rapidly learns to make calling sounds, to crawl about, to pull himself up and peer in the direction from which his mother usually comes. This approach behavior makes him feel less helpless. He is also ready at this time to form new relationships within the family group, so that the mother can gradually free herself for other activities.

The feelings or emotions of the baby at this stage of development have not yet become definitely specialized into forms of expression which we know in the adult as love, hate, and fear; they are in the nature of general body excitement, expressing either well-being or disappointment. We must become accustomed to recognizing the component parts of such a complicated activity as emotion at this early stage of its development. In the beginning of life the baby expresses himself predominantly through the physiological activities—breathing, feeding, and muscle tone. This physiological component of emotional expression is frequently retained by the adult, and we find many normal persons who react to strong emotional excitement with diarrhea, nausea, coldness and pallor of the skin, strong tremor, or actual fainting. There are a number of complicated reasons for this but one is that something in such people has caused a blocking of appropriate forms of emotional expression, and thus the infantile pathways are called into use.

With these facts in mind, it is startling to discover in discuss-

ing these matters with a large group of modern mothers that many of them are not even aware that emotional hunger exists in a baby. Often, in the third month, mothers plan to go back to work—not only the ones who work from necessity, but professional women and artists as well. This separation is obviously damaging to the infant's mental security. His fundamental breathing, feeling, and eating functions are well under control, but the more subtle and delicate adjustments between the emotional and perceptive life are just beginning. Solid food, creeping and standing erect on solid ground, a firm grasp, and particularly a basic unfailing relationship with one individual are at this time essential for the infant's personality development. As independence is increasing, innovations may be made but must be introduced gradually with the mother present.

The bugbear of emotional dependency is, next to thumb sucking, the greatest problem in the mind of every thoughtful parent. This is one reason why the early development of a healthy attachment to the parents is feared and not fostered. It is extremely difficult for parents to appreciate that this early emotional attachment when understood and controlled is a basic factor in the child's mental development, and it is an important factor in educating him. Attempts to temper the child to emotional coldness before he has experienced emotional warmth are much like the old Spartan idea of exposing infants to mobilize courage and fighting strength. They must of necessity take place at the expense of progressive mental development.

What, then, about the development of negative emotional reactions when the child experiences repeated frustration of his need for the mother? Let us look with a thoughtful and discriminating eye on that well-known nursery cyclone, the temper tantrum. The temper or rage reaction is worthy of close study and should not be dismissed as a mere manifestation of the Devil within. It is based on a very fundamental pattern of behavior: the extensor reaction, previously mentioned as probably the one which brings about birth. Already it has proved useful in the infant's behavior experience as what we might call a very primi-

tive fishlike method of locomotion. Under normal circumstances this extension or stiffening-out is also part of the developmental or postural behavior which brings the body into an erect position for standing and walking. The same pattern of behavior we have observed as a response to frustration or disappointment when sucking is interfered with in the early weeks of life—the small torso stiffens out. Again, in babies who get too little mothering, a gradual body tenseness or rigidity develops. Obviously, this extension of the body serves to relieve some sort of inner need, and for this reason it has a tremendously important value to the organism of the small child. However, danger lies in the fact that it readily becomes the main avenue for expressing emotional excitement. It is extremely important, therefore, not to allow this form of behavior to gain undue importance, and the privations which arouse such a reaction must be definitely avoided.

Much later on in his development the young child is able to react to disappointment or deprivation psychologically, without the use of physiological and motor expression. He can discharge his excitement either verbally, in protest, or else in thinking out forms of behavior which tend to prevent like disappointments. To the small baby the tantrum is the easiest way of discharging energy. If he is forced into the frequent use of this type of behavior before he has become aware of the situation to which he is reacting, his reaction tends to become an automatic activity, over which he has great difficulty later in gaining control. Like thumb sucking and other infantile activities, the tantrum becomes overcharged with functional energy and assumes too much importance in the infantile repertory.

As development continues, two other activities may readily be linked up into the early anger reaction—biting and kicking. These important components of eating and locomotion are coming into activity just about the time that emotional reactions become particularly intense. One can see, then, that the first chewing of the infant should be guided toward its physiological purpose. Before the teeth begin to appear, the infant needs to exercise the chewing muscles on hard bread or some suitable food,

so that the association of chewing and food may be maintained. Puppies show clearly this aspect of their domestication in the long and violent chewing period. The urge to bite is usually strong in babies, also, but those who have had sucking trouble, are not "mouth conscious," and the chewing function has to be encouraged. A breast-fed baby who is vigorous will inevitably bite the breast of the mother unless he has been provided already with some kind of suitable solid food at the time that his teeth begin to appear, which is usually between the fifth and seventh months. Unconsciously the mother is likely to frighten the child through her startle or pain reaction, and thus arouse fear in association with chewing. Several mothers in our study group actually slapped the young infants repeatedly for biting the breast, and out of this situation difficult behavior reactions developed which seriously affected the relationship between mother and child. The chewing function itself became inhibited, so that at the age of two years these children could chew no solid food.

The same type of inhibition frequently occurs in connection with kicking. Mothers interpret this activity even in the six-month's baby as an expression of bad temper, instead of as a preparation for walking. Often when the child is diapered he kicks vigorously, and a nurse or mother who is in a hurry may attempt either to hold the feet forcibly or may gently slap the leg, without realizing the effect of such an unfriendly gesture. This impatient attitude frequently fosters passivity in the child. Obviously kicking should be freely exercised, since it is an essential part of learning to walk. Aggressive behavior, like sexual behavior, is latent in human infants, and nature needs assistance in maintaining this latency until adolescence so that mental growth may get its full share of the energy of the young child.

What about early fear reactions in infants? There are two sorts of fear—the innate anxiety which goes with immaturity and inability to maintain self-organization, and the fear of dangers outside the body. The important connection between them must be made clear. The mechanisms of expression for both types of feeling are practically the same. The small baby, we might say,

fears his own inner hungers, which, if they become too intense, tend to upset his entire physiological equilibrium. His first awareness of discomfort, or unpleasure, as it has been called, is associated with his biological needs—food hunger, inability to breathe well or a feeling of suffocation, and aloneness. His first satisfaction is from mother; therefore we may say that the first actual fear is of loss of the mother.* When these needs, which he himself is so essentially helpless to satisfy, become intense because his wants are not immediately supplied, anxiety naturally arises. This feeling seems to become attached later, automatically, to persons who are not his mother, and to unfamiliar objects in the environment.

Another of the first fears of the infant is fear of the dark. Darkness separates him from his mother. This illustrates well the relationship between internal and external fear. It seems to be due to two factors: it shuts him off from the mother, whom he cannot see, and also deprives him of a still more primitive satisfaction, one that comes from the stimulation of light. The necessity of seeing, and particularly of seeing the mother, in gaining and maintaining feelings of security is more vitally important than most of us realize. It is the association between the darkness and a corresponding feeling of need that brings about fear. The child's earliest sense of disturbance, the hunger feeling within himself, may readily become associated with some actual experience, such as being frightened by loud noises in the dark when his mother is not there to reassure him. Also, pain or discomfort which he experiences externally, like being stuck by a pin or having uncomfortable pressure from his bed or coverings, becomes easily associated with the dark and absence of the mother.

We cannot experiment on human babies and give them prescribed amounts of positive or negative emotion, as we experiment with food in order to determine what kind is beneficial and how much can be used, but we can observe the experiments which Nature makes. The unusual case of Baby John shows what may happen when a child is given an unbalanced "diet" of

* See Freud, *The Problem of Anxiety,* chap. viii.

emotion. This infant was left motherless at the age of one week in the maternity ward of a large city hospital. The mother, a Spanish refugee temporarily in this country at the time of the war, died suddenly of hemorrhage, and there was no relative to take charge of the small infant. Circumstances in the history of this little waif appealed deeply to the hospital staff, and both nurses and interns developed a remarkable interest in him. They even broke through the rigid formality of nursery rules to give him an unusual amount of personal care. Nurses who had a few minutes off duty would take up the child, hold him, straighten the bed, and otherwise make him comfortable, so that the infant had literally ten mothers instead of one.

For various reasons, the child remained in the hospital three months, so that it was possible to observe closely his emotional growth. The baby came from humble parentage, and in his ancestry there were no geniuses or college professors, yet his development was head and shoulders above that of any other child studied either in institutions or private homes. Even when he was two weeks old a visitor coming into the nursery would invariably remark, "That child has personality." There was an alertness and responsiveness in him which was immediately recognizable. At three weeks of age he definitely focused his eyes on the face of the familiar nurse; at five weeks he gave her a fleeting smile of recognition; at two months he held up his head firmly and turned in response to a call; at three months he made definite cooing sounds and did a great deal of vocalizing.

Obviously, this was not an ideal situation for bringing out the emotional development of the child because so many different people were involved in caring for him, and the effect of closeness to one individual was lost; yet because the nurses handling him had undergone careful training and the hospital routine minimized individual variations, he lived under emotional conditions similar to those of an infant with an emotionally well-balanced mother.

The sequel to this story is rather distressing. Since no relative claimed the child, he was sent temporarily, at the age of three

and a half months, to an institution for homeless children, thereby losing suddenly the abundant, tender, and extremely individualized care which he had been receiving. This institution was an excellent place, and the child suffered no actual neglect of any kind, yet his reaction to the loss of love was dramatic. The first evidence was visible in pallor, the blood apparently receding from the skin, and what the pediatricians call "skin turgor" diminished rapidly. A tendency to sleep a great deal arose, and after a week he developed a mucous diarrhea in spite of a good diet and no evidences of infection. This diarrhea was extremely difficult to control. These physical symptoms brought the child some of the attentions to which he was accustomed, and his physical symptoms improved but his personality development suffered markedly.

Later it was possible to place the child in a carefully selected foster home with a very motherly and understanding woman, to whom the condition was explained. The infant recovered physically and his body development proceeded at the average rate. The outstanding fact in his subsequent history, however, was his sensitization to any loss of personal attention or love. Separation for one day from the foster mother resulted invariably in an attack of intestinal disturbance, a refusal to eat, or some other physiological manifestation.

It is apparent from observing many infants who, like Baby John, have been deprived of love and from comparing them with others who have flourished under tender personal care, that the ability to love is not a new and independent psychological reaction appearing automatically at a certain period in the child's life and proceeding to develop regardless of outside experiences. It is rather a highly complicated pattern of behavior, beginning physiologically at birth, when the first hungers are appeased by the mother, and developing psychologically in response to her presence and her care.

Emotion is a part of the equipment for living, and crude outbursts in an infant, whether positive or negative, have a certain survival value for life itself, bringing into action behavior which

is later appropriated for satisfying still deeper needs. Love, fear, and defense reactions are in time controlled by the intelligence and are put to important uses. "Emotion moves us, hence the word." * It moves us to love, to fight or to run away—but it also moves us to think.

* See C. S. Sherrington, *The Integrative Action of the Nervous System*. New Haven, Yale University Press, 1906.

XI. GETTING READY TO THINK

WHEN Nature built the baby she seems to have had a basic plan which could be elaborated in countless ways to meet his needs. Strangely enough, his mind and his digestion have a great deal in common, as we unconsciously recognize when we use such expressions as "food for thought," "getting the teeth into a problem," "absorbing an idea," or "digesting a book." Both the physical and mental systems get a large part of their stimulus to function well from experience, and just as the first food taken in is a factor in establishing good digestive and assimilating functions, so the routine activities of the baby and the presence of his mother contribute in a special way to the development of awareness and ideation. The infant may have an excellent endowment in the actual protoplasm of his brain yet may never acquire full use of it without stimulus and direction. As we have seen, the first feeling experiences stimulate an innate capacity in the brain of the baby to associate inner needs with outer satisfactions. This gives an important impetus to the evolution of the mental life.

In discussing the mental status of the baby, therefore, we are concerned with the balanced coördination of all the activities of the small organism and particularly with the untrammeled vigor with which he learns to satisfy his primal hungers. Building up of the metabolism necessary for brain growth and functioning depends in a peculiar way on these fundamental instinctual drives.

The first evidences of alertness and attention as well as recognition of persons and objects are in most babies closely associated with the two dynamic factors, food and mother. The ease and pleasure connected with the satisfaction of the early body needs, and with developing emotional hunger or need for love, seem to be to a large extent responsible for bringing focus and direction

into the early mental life. Food and mother are the first realities in the life of a baby, and the cohesion and stability of his personality are definitely influenced by the way in which these two essential cravings are satisfied. The kind of intelligence generally considered as abstract thinking is a much later acquisition.

The intensity of the human drives to love and to learn, as well as their method of expression, are thus closely related to hunger and personal dependency. These drives are deeply rooted in the helplessness of infancy. The skill and tenderness of the mother and her actual presence have far-reaching effects in bringing out the most complete mental development.

Within the nutritional and breathing systems, nature has subtly developed the feeling life, the basis of both emotion and thinking, and has related it to muscle action or behavior, which gradually becomes the instrument for mental expression. This is particularly clear with regard to speech. Oral activity, on the one hand, is closely associated with eating and tasting, and on the other, it is the ultimate expression of both emotional and intellectual activity.

As a result of mothering, the child gradually combines and coördinates sucking, or food intake, with sense intake—looking, listening, and grasping—and thus a fairly complicated behavior complex is established. Through these sensory experiences, probably something in the nature of a photographic image is registered in the brain. This mental image, which is the foundation of perception, and the ability to reproduce it through what we know as imagination and memory are the beginning of true mental function. Just as the human embryo is evolved in its characteristic physical form through constantly absorbing from the mother the necessary chemical elements, so awareness of his own person and of his mother develop in the child's brain in response to the repeated pleasurable experiences coming in over various sense channels connected with body care and organic function. It is considered by some that the first thinking takes place in images or pictures, of which these early sensory experiences are component parts. Recapturing these pictures through

memory, and adding to them through imagination, accomplishes an intellectual feat. When the baby has achieved the ability to imagine his mother's presence when she is not there, we may say that his mental functioning is well under way.

For example, when an infant of five or six months hears the familiar door of a nursery open, this single stimulus seems to call up in the mind a host of associated stimuli (probably in the form of a picture) before the child actually sees the mother. This primitive memory is elicited both by inner need and by outer stimulus. What we can see is a reaction of excitement and well-being, possibly, with the movements of approach. Concommitant pleasurable sensations of being held, of feeling body warmth, and of being suckled probably begin to develop. This memory does not last long, however, unless an actual mothering experience takes place.

At about the fourth month the baby's breathing and mouth activity begin to be coördinated in relation to his vocal cords. The sense of touch in the mouth has achieved a new function which is both pleasurable and useful. Parenthetically it might be mentioned that many women who are charmed with a child's speech avoid his earlier sucking problems as unpleasant, without realizing that speech and intellectual development have their origin in sucking. One woman who looked over the manuscript of this book with many comments of agreement and approval hastily skipped the chapter on sucking with the comment, "That wouldn't interest me."

The connection between the two processes is evident, for if we analyze vocalizing we find that the infant does two things: with his tongue he stimulates the hard palate as he did in the first sucking, but at the same time expels his breath, making the two consonant sounds of *da* and *na;* with his lips he gets an additional lip stimulation with the syllables *ma* and *ba.* Again he uses his breathing and sucking movements in what is the beginning of word formation. As a rule these new vocal activities bring a burst of attention from the mother—an additional source of pleasure to the child, giving him his first feeling of an au-

dience, of having the ability to communicate. He not only hears but is heard. Vocal relationships begin and word building proceeds rapidly on the basis of these two simple labial and tongue-palate mechanisms. At about the same time, facial expression begins to develop and definite smiling response takes place with the vocalizing. Now he can give, as well as take. Like Little Jack Horner, he no doubt feels, "What a big boy am I!"

Part of the fun is that muscular coördinations are developing also in the rest of the body. In close connection with the vocalizing, a striving toward the mother, particularly a reaching with the hands and arms, becomes well advanced. The average infant is able to hold his head erect at three months, to look, and to turn his head toward a sound. About two months later the arms have been coördinated with eye, ear, and mouth activity, and the infant whose nervous system is developing smoothly begins to reach, grasp, and to pull himself gradually into a sitting position, and later to crawl. These first motor gropings develop with greater facility when they are definitely directed toward the mother.

As mental or outer response activities make their appearance, the instinctual hungers lose some of their intensity. The infant can now maintain for a short time a state of attention and he shows his first efforts to gratify his own needs. Not only does he want what he wants, but he is going to do something to get it.

This picture of a healthy, happy baby contrasts with the unhappy plight of the child who has been kept emotionally detached from the mother in order to avoid the danger of exaggerated dependency. Such a deprived child is already inadequately equipped for life. His appetites and longings have failed to develop normally, and he has little impulse to love. Primarily, there is an imbalance between physiological coördination and emotional behavior. Not only do irregularities of breathing appear but vocalization also tends to be disturbed, and there is with some infants a tendency toward croup and asthma. Such babies may also have a chronically poor appetite, along with either constipation or diarrhea, or else they are overweight. As a rule, they

are either hyperactive, as far as general body movement goes, and inclined to be extremely distractable or are preoccupied with some sort of repetitious activity. They center on themselves the attention that would normally go out to the mother. They have difficulty in focusing either their organic reactions or their general body movements. For example, such a baby of six months when given his bottle does not reach and vocalize; when the bottle is put in his mouth he does not respond with steady holding and firm sucking, followed by satisfied relaxation. On the contrary, he is rather indifferent to the bottle, looks here and there, moves about restlessly, and interrupts his sucking at frequent intervals. His hunger sense has become diffuse and the activities associated with food getting are not well knit together. Pleasure and comfort, to cement these acts, are lacking. Security in the relationship to the mother (or her consistent substitute) is the basis for good eating and eliminating behavior as well as for smooth mental development and educability.

Infants who do not have a definite and direct emotional attachment to the mother show various forms of distorted behavior either in their eating and elimination or else in their speech or locomotion. They may be precocious in speaking and very slow in learning to walk, or vice versa. Later on in life, these children have great difficulty in building up their first relationships with other members of the family group and thus are unable to find the emotional outlet which they so urgently need. They may later on develop brilliant abilities in certain limited fields but are inclined to show early disturbances of personality and are incapable of establishing good personal relationships.

An interesting piece of information, bearing directly on the subject of the linking up of emotional with intellectual development, was recently communicated to the writer by Margaret Mead, who has made intensive study of parental care among the natives of Bali and Samoa. Infants in these islands have complete liberty as far as sucking is concerned, and their first instinctual needs in this respect are fairly well taken care of. However, their

emotional ties are never soundly built up. These babies are cared for by any member of the family, including the father, grandmother, and small brothers and sisters, and apparently the emotions get no initial focus on the mother. They may even suckle from a number of different women. They are purposely made to feel jealous, and any close attachment to the mother is ridiculed. The result seems to be that emotional and social relationships throughout life remain insecure, for these are based chiefly on food satisfaction and protection against strangers outside the group. It is not surprising to find that the sex drive of these children is in evidence early, since no attempt is made to sublimate it through the medium of a good parental relationship, which it tends to replace. The emotional integration and intellectual development which civilized children reach before adolescence is not fostered. Intellectually, these children are not defective and some of them have been educated along certain lines with success, even in such abstract training as mathematics, through the personal effort of a teacher to whom the child has become attached. However, when taken out of the familiar environment of the group, these children cannot maintain self-coördination and they either go into a deep depression, which cripples them so greatly that they cannot function, or else they sicken and die.

Certain striking general correlations become evident in studying the developmental sequence of behavior in a large number of babies with close regard to the type of mothering care that they have received. For those children whose mothers are more nearly mature emotionally, and who have consistently made good personal adjustments in life, mental development proceeds much more rapidly and is definitely better integrated. Such mothers do not make use of the child as a companion or as a play object, but they recognize intuitively and usually also through definite study the essential nature and actual personal needs of the infant; they are not obsessed with fear either that the child may become too much attached to them or else that his mentality is some-

how inadequate or his sexual expression precocious; and if some temporary anomaly arises, they are not fearful of calling for expert advice.

On the other hand, it is interesting to note, from the close month-to-month development of babies whose mothers are emotionally detached or absorbed in social, professional, or artistic pursuits, that either retardation is evident in speech or locomotion or else dissociated activities which we know as habits have appeared. Such babies invariably have eating problems and disturbances of elimination; they sleep too little and tend to be hyperactive and not well focused, or may have developed, already, an exaggerated tendency to sexual interest and autoerotic practices.

Testing of "intelligence" in a child under a year of age is a questionable procedure. The only factors which can be estimated with any degree of accuracy, without a continuous day-by-day observation over a period of at least a week, are the general eating and breathing adequacy, the ability to focus emotionally, and the nature of vocalizing. Perhaps the most significant factor in the mental life at this time is the stability of the child's physiological activity and his ability to maintain motor coördination and to sleep under the stress of slight changes of routine, change of nurse, or temporary withdrawal of the mother. A poorly integrated infant will react to any of these changes with organic disorders rather than with some immediate, psychological protest. The better integrated child will react with crying or with hyperactivity, perhaps in the nature of looking for what he has lost.

A simple test is suggested which will prove useful for determining the stability of babies between six and twelve months of age whose early development has not been closely observed. This test must be conducted in the child's own room, and he must not become aware of a strange observer's presence. Such a test is valid only if detailed information has been obtained and it is known that the child's routine reactions in the previous

twenty-four hours have been normal for him. The test, of course, would not apply where disturbing incidents have preceded it.

Integration test. As the child is waking from a nap, and just before any of his routine feedings (preferably in the afternoon), his mother comes into the room to nurse him and sits beside the crib; or, his bottle containing milk is placed by his mother or familiar nurse on a small table in full view of the crib. The bottle is immersed in hot water for warming.

I. Well-integrated babies between six and twelve months of age give the following reactions: Attention is focused alternately on the bottle and the mother (food hunger and emotional need are becoming differentiated); there is immediately some motor reaction, indicating pleasurable excitement in the younger baby —kicking, arm waving, and vocalizing, with a general tendency to reach toward the mother. The older child will pull himself up to a standing position or else crawl toward the mother. These reactions indicate good mental response.

II. The child who is less well integrated, who has been allowed to remain hungry or too much alone, or who has suffered from illness or accidents, reacts with diffuse restlessness and crying but makes no coördinated response when he sees either his mother or the bottle. Such a child is living under constant tension. His hungers either develop to such a degree when food or mother appears that they overpower him or else they have become diffuse, and any organized reaction, such as vocalizing or striving toward the mother, is precluded.

III. The baby who has suffered from persistent frustration, either instinctual or emotional, shows a definitely pathological reaction. This type of child, after a fleeting recognition of the food-mother situation, shows little further attention. As a rule, he becomes distracted immediately by some other interest or else may fall asleep again, making no coördinated attempt to reach for what he needs. This type of reaction has a sinister implication both for physical and mental health and means that the

child's ability to recognize and cope with basic needs has become disorganized. Efforts toward reorganization should be begun promptly.

Type I child has a nominal degree of security and coördination due to consistent satisfaction of instinctual and emotional hungers. In consequence, he has reached a higher level of mental development. The faculty of attention is sustained for an appreciable length of time. Clear recognition, pleasure reaction to both food and mother, and some degree of appropriate response are all evident. Instead of immediately crying, attempts at speech are made.

Type II child, who cries immediately, is reacting on an anxiety basis. He is so insecure that he is immediately overcome by either fear of disappointment or by rage, and his energy is dissipated negatively.

Type III child has already set up protective reactions against those hungers which are fundamental in his development.

It becomes evident, then, that the linking up of various levels of mental and premental life takes place in a subtle and often in an entirely unrecognized fashion, and that the most important element in facilitating this interassociation of various levels of mental life is consistent mothering.

XII. FATHERS

So MUCH has been said about the mothering of the infant that it might well be inferred that the role of the father in the early life of his child is negligible. Because this role is an indirect one it is often totally ignored, and this is one of the glaring defects of our modern system of child care. For the love and understanding which a man gives to his wife, both during pregnancy and in the first year of the child's life, is basic for her emotional stability and hence indirectly contributes to the baby's psychological welfare.

The average business or professional man today has very little regular time to devote to his infant, and because of the fact that irregularity is such a disturbing matter to a young baby it is often best if the father does not come directly into the child's routine until after the third month. However, if it is possible to have a daily period when the father has time to take over an hour or so of responsibility, it is an ideal situation that contributes in an important way to the child's feeling of security; it eases the mother's task somewhat and gives the man a vital experience which he can ill afford to miss.

This triangle is the pinnacle of human relations, and if all goes well emotionally both before and just after the infant's birth, a great step has been taken toward smooth mental development of the child. When there is persistent maladjustment between parents, the child's psychological development cannot proceed smoothly. It is invariably influenced by the deep emotional tone of the parental relationship. However much both parents may know about infant psychology and however strongly they desire and intend to give their baby a good start in life, their own emotional difficulties interfere.

Our modern setup for the care of pregnancy, birth, and early babyhood takes emotional factors very little into consideration.

A great deal of attention is lavished on the mother by the obstetrician or the clinic she attends, and this is as it should be. However, it is a fallacy to consider the pregnant woman apart from her husband. Fortunately the practice is becoming common of establishing clubs for fathers-to-be or at least of giving evening lectures for fathers with practical demonstrations of baby care. Strangely enough such vital information as how to care for a baby and his needs in the first months has never become a universal part of the education of young people.

A very common experience with young fathers-to-be is that the man suddenly feels himself abandoned, or else vaguely uneasy, in this situation of change in his relationship with his wife. One reason for this is that fatherhood also relates to experiences in a man's early life. As a child, he may have been emotionally shocked by the advent of a baby brother or sister for whom he was not prepared. The sudden appearance of the newcomer, without explanation, indicates to the tiny child that his place had been taken away. At this age a child is unable to reason out the fact that there is enough affection for him, as well as for the newcomer. Small children *feel;* they do not think. The effect of this early disturbance is often retained although the individual is usually unaware that such feelings are part of his emotional makeup. Then, when the situation is upon him he reacts with panic, without in any way recognizing the cause. This is a matter of great importance to young married men and one which should be well understood.

It is frequently said of a man who makes a phenomenal success in life that some woman is "the power behind the throne." In a woman's greatest creative venture, the bringing into the world of a new human being and guiding him psychologically through infancy, her husband is the power behind the throne and the success of her undertaking depends to a great extent upon the constancy of that power.

XIII. TOWARD MENTAL HEALTH

WE ARE GENERALLY AGREED that we are one of Nature's most successful experiments. There were many ways of providing for the care of the young before Nature tried her hand at mammals. Previously one of the most successful steps in evolution was the egg-laying species. Sometimes this method involved care of the young after the eggs were hatched, and sometimes, as in the case of the cold-blooded reptiles like the dinosaur, the female laid the eggs in the sand, let the sun do the hatching, and left the infants in the hands of fate. There are some modern parents who seem to think this was a good idea; they do not wish to be burdened with the care of an infant. Particularly has breast feeding gone out of vogue, and mothers say with spirit that they are not going to be cows. They seem even to prefer to be dinosaurs.

When scientists find the unhatched dinosaur eggs in the sand near a few of the bones of the dinosaur parents they are apt to speculate on what went wrong with the system. After careful study, we can safely assume that one cause of their extinction was lack of a relationship with their young. Undoubtedly an important factor in man's ascendancy to his supreme position is consistent care and love through the long period of infancy. If in times of war we wonder whether something, in turn, has gone wrong with our own system, we may perhaps find the answer in our still inadequate understanding of the mother-infant relationship. If human nature is to be changed, if individuals are going to be more self-secure, more rich in their capacity to love, to think creatively, and to work through and solve problems of the world tomorrow, their early emotional hungers must be appeased.

The personality development of human beings is not a well-organized and evenly balanced process which continues on its own momentum without outside direction. Heredity is not fixed and final, except as to its basic biological patterns of breathing,

feeling, and nutritional activity. It is really a compliment to the human mother that Nature gives her a child who at birth and for sometime afterwards is so incomplete psychologically that he is quite unable to function independently of her, and the healthy mother feels that challenge to act as guide to her helpless infant. The art as well as the science of mothering is to initiate and give momentum to the first functions of the child as they develop in sequence, but two situations must never be allowed to come about—the overdevelopment of the child's emotional attachment for his mother or a ruthless weaning from her.

Fundamental right adjustment is reflected in the feeling of security, which leads the infant onward to a glowing self-reliance. Conversely, maladjustment is echoed in that basic human disturbance, the sense of anxiety or feeling of inadequacy. It is well known that the baby who is born prematurely must have constant expert help in maintaining physical health. As development proceeds, this child remains delicate and unable to make adjustments which to an average individual are simple. Frequently this inadequacy persists throughout life. The vigorous full-term infant separated suddenly or prematurely from the mother is in a similar state psychologically and begins to function uncertainly. Such children are nervous and insecure and their emotional and perceptive functions rarely develop to full capacity.

Three basic experiences in life may predispose the infant to "nervousness" or anxiety—birth, weaning, and toilet training. Weaning gives the clearest illustration of good and bad handling of first relationships. The adult in charge is apt to concentrate far too early on the problem of how the child is to give up either the breast or the bottle. This is a bridge that can be best crossed when it is met, for when the time for weaning comes, the infant's overwhelming satisfaction in nursing will be partly replaced by the new activities he has discovered. Mothers who worry too early about weaning problems are like the Mexican midwife whose duty it was to warn the newborn baby that he would have to earn his bread and would have a hard time doing it. The

prophecy may have been all too true, but the warning was premature. A deliberate policy of privation or weaning shows a lack of understanding of the psychology of a child. For an adult, privation may mean looking ahead—saving your corn in order to plant it—and as such it may be a character builder. The baby knows no future. Privation is a threat to his body integrity. All he knows is that he is made unhappy, and unhappiness at this age may rapidly become a disease which affects the entire organism. It may lead to intellectual dullness, or to unsocial behavior. Well-being, on the other hand, means a wealth of energy.

Nature, who can be as kind as she can be ruthless, has provided the baby with a pleasant way of passing out of the nursing stage. The need for varied food and the discovery of his own voice as a new means of communication help along the weaning process. They are in the nature of an exciting development. Moreover, the baby at this point has probably discovered a revolutionary new distinction. Food and mother are two different things! There is a wealth of material on this subject, and no doubt even the baby is able to appreciate the importance of the distinction. It is a great step forward for him.

But here we run into the argument of the women who think the child might as well make that discovery immediately after birth. Why not start him out with a milk bottle? The answer is that it is possible to do so if necessary, provided the immediate sense of security which breast feeding brings to the infant, from close contact and being held securely, is given him at the same time. But it is a makeshift at best and never to the child's advantage. Instructions on bottle feeding are usually made a matter of chemistry—and psychology is left out of the picture. Breast feeding brings "immunization" against anxiety, and this is even more important than the chemical protection which it is supposed to give the child.

Adjustment to artificial food and to contact with a rubber nipple is by no means a trivial matter for a newborn child. It is always a psychological handicap (privation), and when to these factors we add the isolation of a modern nursery and the cold

hardness of the stationary crib, in place of the warm living contact with the mother's body, the infant is forced to adjust to a world quite different from the one his body and nervous system have become adapted to before birth.

Ordinarily a baby is ready to accept some oral changes in the fourth or fifth month of life, when new foods are introduced, and he progresses gradually with these exciting taste experiences. At the same time come new relational experiences which give another kind of zest to the baby's life. New persons in the family group, especially the father, will not only help to answer the infant's emotional needs but will gradually lift some of the burden and responsibility from the mother. Too jealous an attitude on her part will be as bad for her as it will be for the baby. However, with any new experiences, the mother must always be present to maintain security. Clinging with one hand to the familiar is essential as the child ventures each step into the new world of strange diets and persons.

It may seem to some women that the picture of mother-and-child relationship sketched so far neglects the problems of the mother. After all, the madonna has been painted mostly by male artists, who may see in the mother only someone who looked after him and will look after his child, rather than an individual with outside interests of her own. What is the modern woman's psychology during the period before and after the birth of her child, and how can she meet the needs of her infant without abandoning her own career?

We must go back to the beginning to attempt an answer to this question, which involves physiology as well as psychology.

The biological relationship of the infant to the mother begins with conception. Without knowing it the mother starts immediately to give large stores from her own body supplies for the building of the new organism. Unconsciously she regards the child as part of her own body. This is a new condition for the woman but one for which Nature has richly equipped her. If, however, she has dedicated her life to an art or a profession, she must during pregnancy take stock of her own supply of

nervous energy or else either she or the child may suffer. Both nervous systems are dependent on the same source of supply, and the metabolic needs for the development of the infant's nervous system are known to be high. In our studies of several hundred first pregnancies, there was found to be a definite relation between the amount of mental activity of the mother during the last half of pregnancy and the nervous reactions of the child following birth. The woman has to consider the fact that her nervous energy is taxed in many ways. If she is doing creative work, it is highly improbable that she can at the same time create a child who will not be nervous. Our maternity clinics give most excellent advice about diets, particularly with reference to the teeth and bones, but the nervous system and psychological aspects of pregnancy have received little consideration.

The old theory of prenatal impressions has been largely exploded, and the many superstitions as to how the child is influenced during pregnancy are now recognized as false. Yet there is a germ of truth in the idea of prenatal impressions, just as there is in much of our folklore. We know that there is no actual connection between the nervous system of mother and child; that is, no actual nerve fibers go through the placenta (if they did, the child would be unnecessarily subjected to all sorts of shock and overstimulation). Yet both nervous systems feed from the same source of supplies, and there may be factors as yet unknown which distribute and balance these supplies between mother and child. Not infrequently after the experience of pregnancy and childbirth, the mother suffers from nervous exhaustion or from a complete mental breakdown.

Some women have a tendency to force themselves to maintain or even exaggerate their mental activity during the pregnancy period. Many actually think of this function of child bearing and breast feeding as something demeaning. The temporary withdrawal from active participation in business, professional, or social interests in order to create a human being has come to be regarded as a lowly and belittling procedure. Association with other women who have had this experience will often help

to show the artificiality of this attitude. Womanly women will get unique mental stimulus and understanding from contact with the first principles of life. If there is such a thing as a "touchstone of truth," it is likely to be found in the experience of child bearing and psychological mothering.

Modern obstetrics and the methods of prenatal care have reached the pinnacle, perhaps, of mechanical and aseptic efficiency, but they have not yet begun to teach the psychological aspects of pregnancy and the fact that the brain metabolism of the mother must not be taxed at this time. Any insidious imbalance in her body economy may lead to convulsive disorders which are connected with disturbances of liver and kidney functions.

A mistake in our present system of postnatal baby culture which makes for nervousness is that the child is immediately taken away from the mother and sent to the hospital nursery, and she may not even see him until twelve or twenty-four hours later. The idea is that the woman is overtaxed by the process of delivery and that hearing the cry of the child may disturb her and delay her recovery. This is true only in cases of abnormal delivery or else when the mother is nervously ill. Normal mothers often complain of the deprivation. For the infant it is the worst possible procedure.

The period covered by this book is that small segment of life which is usually called infancy, but life is a continuous process, and a glance into the child's future may help in directing the present, just as a glance into the past helped to explain it. The main hazard which may arise somewhat later in the child's life as a result of too little or inconsistent mothering is that of precocious sexual development. Under ideal conditions in which the parents are emotionally well adjusted and the baby is wanted and loved, the sex impulses of the child do not necessarily become a problem until near adolescence, though they are definitely in evidence. However, this ideal condition is rare. When emotional hunger in the child is not satisfied or, on the other hand, when the early emotional relationship with the mother is over-

developed because of insecurity in the mother, the so-called "sex habits" or autoerotic activities inevitably become exaggerated. The unmothered infant, if he is vigorous and robust, will stimulate himself with various kinds of rhythmical body activities if the normal fondling and rocking are denied him. This self-stimulus has a direct bearing on early infantile masturbation, since it leads eventually to pleasure stimulation of the genital organs. In turn, the premature and excessive stimulation of the sex organs brings about fatigue and general uneasiness in the child and arouses disapproval and anxiety in the parent. In this way, almost unknowingly, a situation of great dynamic intensity is established and a conflict started between the child and his environment which may last throughout life.

From the physiological point of view, as well as from the emotional, this premature breaking-through of the child's sex feeling is damaging. However, when it has taken place, it cannot be summarily suppressed. Prevention of such a condition by maintaining a good emotional relationship with the young child and by the early provision for the natural expression of his instinctual needs is the only sure cure. It is a serious task to attempt to divert sexual energy into new channels of interest. Only by considering the "rights" of infants can we forestall those "wrongs" which later on society feels itself obliged to deal with harshly.

When the young child is overwhelmed with an excessive amount of emotional attention from a frustrated parent who uses him as a solace because of disappointments in more mature relationship, we have an even more difficult situation. The child may become passive and a daydreamer or else become overemotional, often with the result that the entire personality development is affected.

Thus, as we have seen, poor relationship with the parents leads to reactions in the infant which tend to become the basis of adult personality disorders. The most important asset of the baby as he begins life is two emotionally healthy parents. His deepest need by far is the understanding care of one consistent individual —his mother. Perhaps in time we shall recognize the danger of

the emotionally unhealthy personality and shall see that emotional disturbance in the parents is as damaging to the baby as is tuberculosis or syphilis. If this sounds shocking to any reader, let it be taken to heart. The parents who shrink in horror from the "animal" side of life make it impossible for the child to develop the very qualities of intelligence and spirituality that they think they stand for. If they are to be worthy parents of a normal baby, groping his way upward like any living thing, they will have to develop a new form of fastidiousness founded on knowledge of biological reality. There is no other way to guide the baby toward mental health.

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